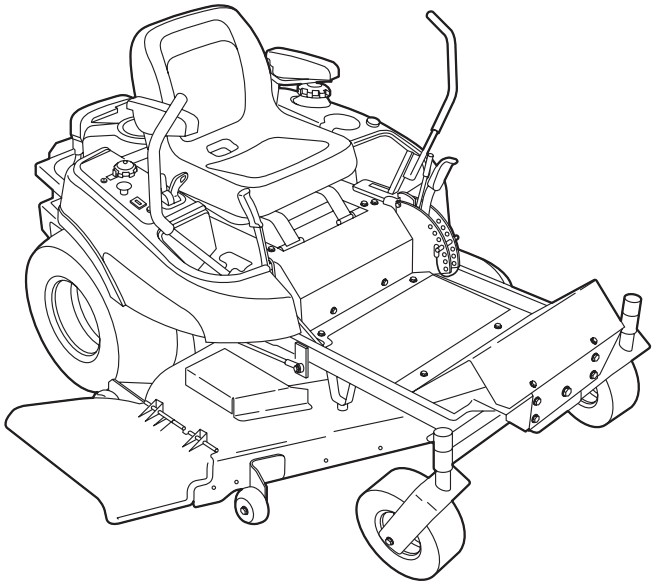
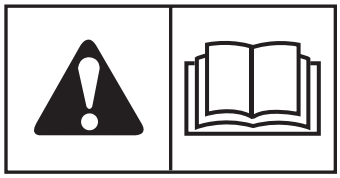
Simplicity®

SNAPPER

OPERATOR'S MANUAL





24HP Zero-Turn Riders

Mfg. No.	Description
5900660	Simplicity 24HP B&S Champion Zero-Turn Rider with 44" Mower
5900662	Simplicity 24HP B&S Champion Zero-Turn Rider with 50" Mower
5900684	Simplicity 24HP B&S Champion Zero-Turn Rider with 50" Mower (CE/Export)
5900681	Snapper 24HP B&S 350Z Zero-Turn Ridier with 44" Mower
5900682	Snapper 24HP B&S 350Z Zero-Turn Ridier with 50" Mower
5900685	Snapper 24HP B&S 350Z Zero-Turn Ridier with 50" Mower (CE/Export

Form No. 5101066
Revision 00
Rev.Date 5/2007
TP 100-7327-00-CH-SMN

Thank you for purchasing this quality-built product. We're pleased that you've placed your confidence in the Simplicity and Snapper brand. When operated and maintained according to the instructions in this manual, your product will provide many years of dependable service.

This manual contains safety information to make you aware of the hazards and risks associated with this machine and how to avoid them. This machine is designed and intended to be used and maintained according to the manual for finish cutting of established lawns and is not intended for any other purpose. It is important that you read and understand these instructions thoroughly before attempting to start or operate this equipment.

PRODUCT REFERENCE DATA	
Unit Model Number	Unit SERIAL Number
Mower Deck Model Number	Mower Deck SERIAL Number
Dealer Name	Date Purchased
ENGINE REFERENCE DATA	
Engine Make	Engine Model
Engine Type/Spec.	Engine Code/Serial Number

See Page 8 for the location of Identification Numbers

DATE PURCHASED

⚠ WARNING

Engine exhaust from this product contains chemicals known, in certain quantities, to cause cancer, birth defects, or other reproductive harm.

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Contact Information:

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P.O. Box 997
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Port Washington, WI 53074-0997
www.simplicitymfg.com

The Snapper logo is a trademark of Briggs & Stratton Corporation Milwaukee, WI, USA.

Contact Information:

Snapper Products
535 Macon St.
McDonough, GA 30253
www.snapper.com

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NOTE: In this manual, “left” and “right” are referred to as seen from the operating position.



Operating Safety

Congratulations on purchasing a superior-quality piece of lawn and garden equipment. Our products are designed and manufactured to meet or exceed all industry standards for safety.

Do not operate this machine unless you have been trained. Reading and understanding this operator's manual is a way to train yourself.

Power equipment is only as safe as the operator. If it is misused, or not properly maintained, it can be dangerous! Remember, you are responsible for your safety and that of those around you.

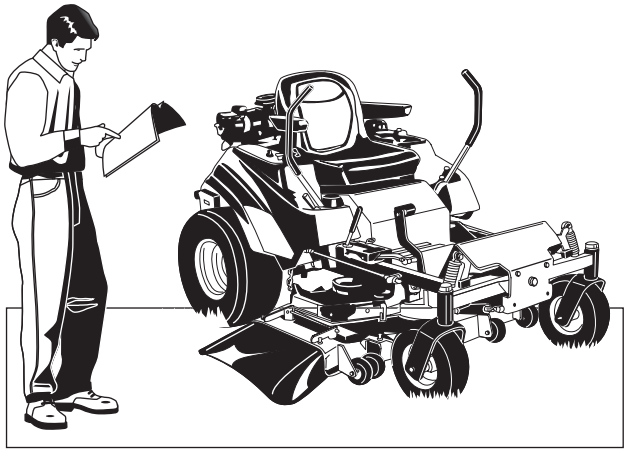
Use common sense, and think through what you are doing. If you are not sure that the task you are about to perform can be safely done with the equipment you have chosen, ask a professional: contact your local authorized dealer.

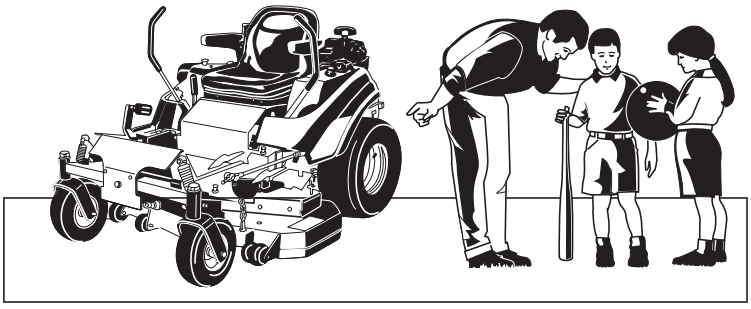
Read the Manual

The operator's manual contains important safety information you need to be aware of BEFORE you operate your unit as well as DURING operation.

Safe operating techniques, an explanation of the product's features and controls, and maintenance information is included to help you get the most out of your equipment investment.

Be sure to completely read the Safety Rules and Information found on the following pages. Also completely read the Operation section.

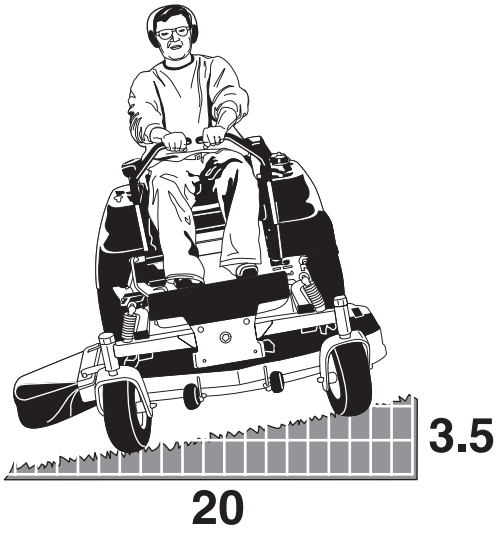




Children

Tragic accidents can occur with children. Do not allow them anywhere near the area of operation. Children are often attracted to the unit and mowing activity. Never assume that children will remain where you last saw them. If there is a risk that children may enter the area where you are mowing, have another responsible adult watch them.

Slope Operation



Operation on slopes can be dangerous. Using the unit on a slope that is too steep where you do not have adequate wheel traction (and control) can cause sliding, loss of steering, control, and possible rollover. You should not operate on a slope greater than a 3.5 foot rise over a 20 foot length (10 degrees).

Always mow across slopes, not up and down (to maintain traction on the wheels) and avoid sudden turns or rapid speed changes. Reduce speed and use extreme caution on ALL slopes.

Also, note that the surface condition you are on can greatly impact your ability to safely operate this machine. Operating on wet or slippery slopes can cause sliding and loss of steering and control. Do not operate on slopes that are slippery, wet, or have soft soil conditions.

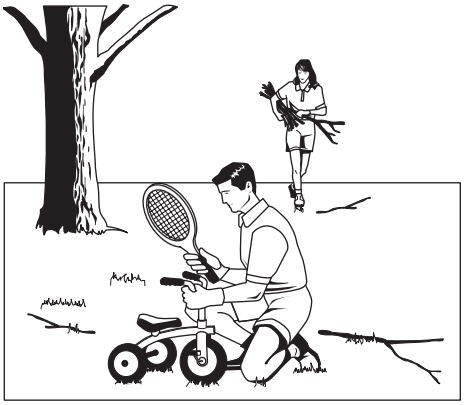
If you feel unsure about operating the unit on a slope, don't do it. It's not worth the risk.

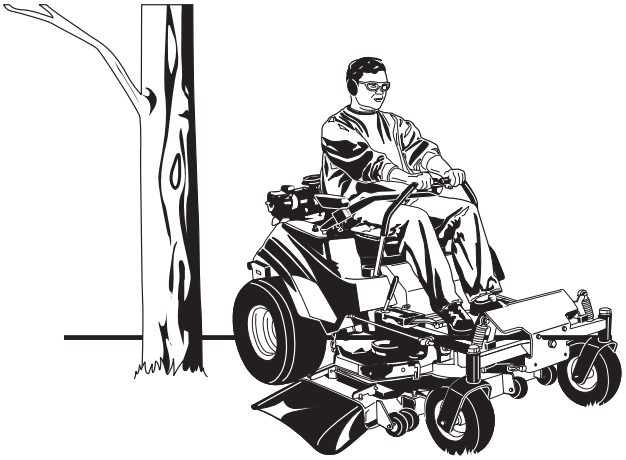
Thrown Objects

This unit has spinning mower blades. These blades can pick up and throw debris that could seriously injure a bystander. Be sure to clean up the area to be mowed and remove objects that could be thrown by the blade BEFORE you start mowing.

Do not operate this unit without the entire grass catcher or discharge guard (deflector) in place.

Also, do not allow anyone in the area while the unit is running! If someone does enter the area, shut the unit off immediately until they leave.





Moving Parts

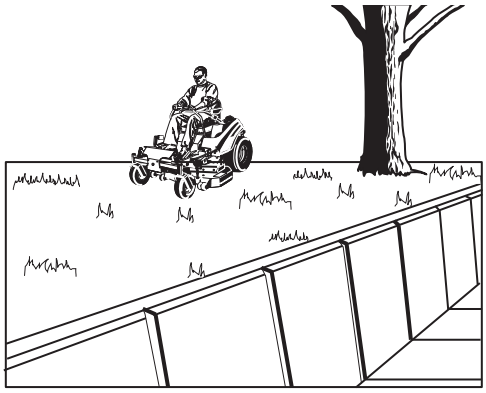
This equipment has many moving parts that can injure you or someone else. However, if you stay in the operator zone (stay seated in the seat), and follow the safety rules in this operator's manual, the unit is safe to operate.

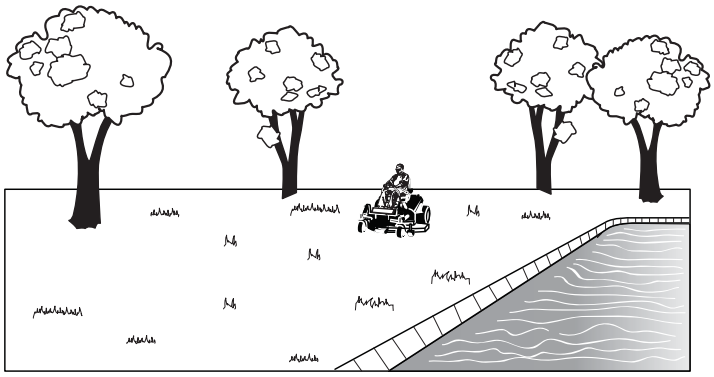
The mower deck has spinning mower blades that can amputate hands and feet. Do not allow anyone near the unit while it is running! Keep safety devices (guards, shields, and switches) in place and working.

To help you, the operator, use this equipment safely, it is equipped with an operator-present safety system. Do NOT attempt to alter or bypass the system. See your dealer immediately if the system does not pass all the safety interlock system tests found in this manual.

Retaining Walls, Drop-offs, and Water

Retaining walls and drop-offs around steps and water are a common hazard. Give yourself a minimum of two mower widths of clearance around these hazards and hand-trim with a walk behind mower or string trimmer. Wheels dropping over retaining walls, edges, ditches, embankments, or into water can cause rollovers, which may result in serious injury, death, or drowning.





Fuel and Maintenance

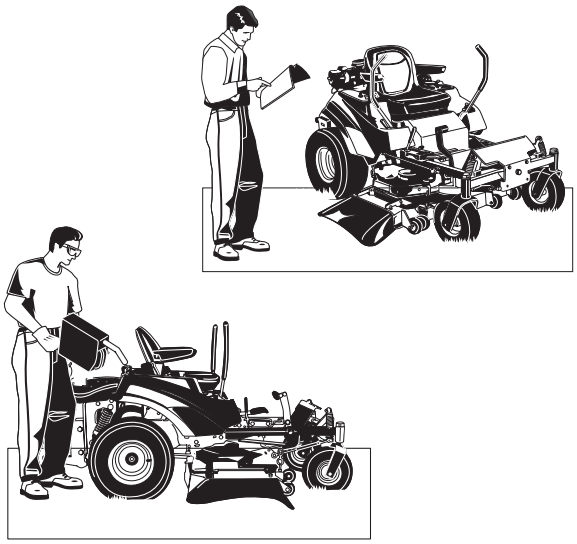
Always disengage all drives, shutoff the engine, and remove the key before doing any cleaning, refueling, or servicing.

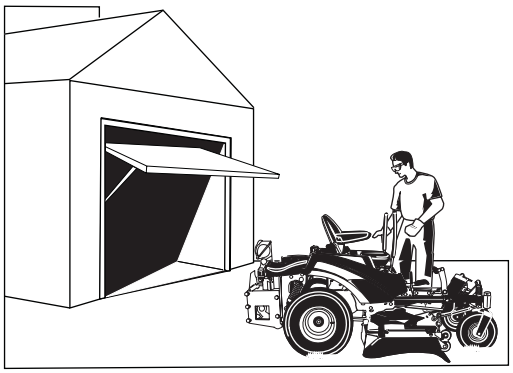
Gasoline and its vapors are extremely flammable. Do not smoke while operating or refueling. Do not add fuel while engine is hot or running. Allow engine to cool for at least 3 minutes prior to adding fuel.

Do not add fuel indoors, in an enclosed trailer, garage, or any other enclosed area that is not well ventilated. Gasoline spills should be cleaned up promptly and before operation begins.

Gasoline should be stored only in sealed containers approved for fuel.

Proper maintenance is critical to the safety and performance of your unit. Keep the unit free of grass, leaves, and excess oil. Be sure to perform the maintenance procedures listed in this manual, especially periodically testing the safety system.





Enclosed Areas

Only operate this unit outdoors and away from unventilated areas such as inside garages or enclosed trailers. The engine emits poisonous carbon monoxide gas and prolonged exposure in an enclosed area can result in serious injury or death.

Read these safety rules and follow them closely. Failure to obey these rules could result in loss of control of unit, severe personal injury or death to you, or bystanders, or damage to property or equipment. **This mowing deck is capable of amputating hands and feet and throwing objects.** The triangle ⚠ in text signifies important cautions or warnings which must be followed.

GENERAL OPERATION

1. Read, understand, and follow all instructions in the manual and on the unit before starting.
2. Do not put hands or feet near rotating parts or under the machine. Keep clear of the discharge opening at all times.
3. Only allow responsible adults, who are familiar with the instructions, to operate the unit (local regulations can restrict operator age).
4. Clear the area of objects such as rocks, toys, wire, etc., which could be picked up and thrown by the blade(s).
5. Be sure the area is clear of other people before mowing. Stop the unit if anyone enters the area.
6. Never carry passengers.
7. Do not mow in reverse unless absolutely necessary. Always look down and behind before and while travelling in reverse.
8. Never direct discharge material toward anyone. Avoid discharging material against a wall or obstruction. Material may ricochet back toward the operator. Stop the blade(s) when crossing gravel surfaces.
9. Do not operate the machine without the entire grass catcher, discharge guard (deflector), or other safety devices in place and operational.
10. Slow down before turning.
11. Never leave a running unit unattended. Always disengage the blades (PTO), set parking brake, stop engine, and remove keys before dismounting.
12. Disengage blades (PTO) when not mowing. Shut off engine and wait for all parts to come to a complete stop before cleaning the machine, removing the grass catcher, or unclogging the discharge guard.
13. Operate the machine only in daylight or good artificial light.
14. Do not operate the unit while under the influence of alcohol or drugs.

15 Watch for traffic when operating near or crossing roadways.

16. Use extra care when loading or unloading the unit into a trailer or truck.
17. Always wear eye protection when operating this unit.
18. Data indicates that operators, age 60 years and above, are involved in a large percentage of power equipment-related injuries. These operators should evaluate their ability to operate the equipment safely enough to protect themselves and others from injury.
19. Follow the manufacturer's recommendations for wheel weights or counterweights.
20. Keep in mind the operator is responsible for accidents occurring to other people or property.
21. All drivers should seek and obtain professional and practical instruction.
22. Always wear substantial footwear and trousers. Never operate when barefoot or wearing sandals.
23. Before using, always visually check that the blades and blade hardware are present, intact, and secure. Replace worn or damaged parts.
24. Disengage attachments before: refueling, removing an attachment, making adjustments (unless the adjustment can be made from the operator's position).
25. When the machine is parked, stored, or left unattended, lower the cutting means unless a positive mechanical lock is used.
26. Before leaving the operator's position for any reason, engage the parking brake (if equipped), disengage the blades (PTO), stop the engine, and remove the key.
27. To reduce fire hazard, keep the unit free of grass, leaves, & excess oil. Do not stop or park over dry leaves, grass, or combustible materials.
28. It is a violation of California Public Resource Code Section 4442 to use or operate the engine on or near any forest-covered, brush-covered, or grass-covered land unless the exhaust system is equipped with a spark arrester meeting any applicable local or state laws. Other states or federal areas may have similar laws.
29. OSHA regulations may require the use of hearing protection when exposed to sound levels greater than 85 dBA for an 8 hour time period.

⚠ CAUTION



This machine produces sound levels in excess of 85 dBA at the operator's ear and can cause hearing loss through extended periods of exposure.

Wear hearing protection when operating this machine.

TRANSPORTING AND STORAGE

1. When transporting the unit on an open trailer, make sure it is facing forward, in the direction of travel. If the unit is facing backwards, wind lift could damage the unit.
2. Always observe safe refueling and fuel handling practices when refueling the unit after transportation or storage.
3. Never store the unit (with fuel) in an enclosed poorly ventilated structure. Fuel vapors can travel to an ignition source (such as a furnace, water heater, etc.) and cause an explosion. Fuel vapor is also toxic to humans and animals.
4. Always follow the engine manual instructions for storage preparations before storing the unit for both short and long term periods.
5. Always follow the engine manual instructions for proper start-up procedures when returning the unit to service.
6. Never store the unit or fuel container inside where there is an open flame or pilot light, such as in a water heater. Allow unit to cool before storing.

SLOPE OPERATION

Slopes are a major factor related to loss-of-control and tip-over accidents, which can result in severe injury or death. Operation on all slopes requires extra caution. If you cannot back up the slope or if you feel uneasy on it, do not operate on it.

Control of a walk-behind or ride-on machine sliding on a slope will not be regained by the application of the brake. The main reasons for loss of control are: insufficient tire grip on the ground, speed too fast, inadequate braking, the type of machine is unsuitable for its task, lack of awareness of the ground conditions, incorrect hitching and load distribution.

1. Mow across slopes, not up and down.
2. Watch for holes, ruts, or bumps. Uneven terrain could overturn the unit. Tall grass can hide obstacles.
3. Choose a slow speed so that you will not have to stop or change speeds while on the slope.
4. Do not mow on wet grass. Tires may loose traction.
5. Avoid starting, stopping, or turning on a slope. If tires lose traction (i.e. machine stops forward motion on a slope), disengage the blade(s) (PTO) and drive slow off the slope.
6. Keep all movement on slopes slow and gradual. Do not make sudden changes in speed or direction, which could cause the machine to rollover.
7. Use extra care while operating machines with grass catchers or other attachments; they can affect the stability of the unit. Do not use on steeps slopes.
8. Do not try to stabilize the machine by putting your foot on the ground (ride-on units).
9. Do not mow near drop-offs, ditches, or embankments. The mower could suddenly turn over if a wheel is over the edge of a cliff or ditch, or if an edge caves in.
10. Do not use grass catchers on steep slopes.
11. Do not mow slopes if you cannot back up them.
12. See your authorized dealer/retailer for recommendations of wheel weights or counterweights to improve stability.
13. Remove obstacles such as rocks, tree limbs, etc.
14. Use slow speed. Tires may lose traction on slopes even though the brakes are functioning properly.
15. Do not turn on slopes unless necessary, and then, turn slowly and gradually uphill, if possible. Never mow down slopes.

⚠WARNING

Never operate on slopes greater than 17.6 percent (10°) which is a rise of 3-1/2 feet (106 cm) vertically in 20 feet (607 cm) horizontally.

Select slow ground speed before driving onto slope. Use extra caution when operating on slopes with rear-mounted grass catchers.

Mow across the face of slopes, not up and down,use caution when changing directions and DO NOT START OR STOP ON SLOPE.

TOWED EQUIPMENT (RIDE-ON UNITS)

1. Tow only with a machine that has a hitch designed for towing. Do not attach towed equipment except at the hitch point.
2. Follow the manufacturer's recommendations for weight limit for towed equipment and towing on slopes. See attaching a trailer under OPERATION.
3. Never allow children or others in or on towed equipment.
4. On slopes, the weight of the towed equipment may cause loss of traction and loss of control.
5. Travel slowly and allow extra distance to stop.
6. Do not shift to neutral and coast down hill.

CHILDREN

Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the unit and the mowing activity. Never assume that children will remain where you last saw them.

1. Keep children out of the mowing area and under the watchful care of another responsible adult.
2. Be alert and turn unit off if children enter the area.
3. Before and during reverse operation, look behind and down for small children.
4. Never carry children, even with the blade(s) off. They may fall off and be seriously injured or interfere with safe unit operation. Children who have been given rides in the past may suddenly appear in the mowing area for another ride and be run over or backed over by the machine.
5. Never allow children to operate the unit.
6. Use extra care when approaching blind corners, shrubs, trees, or other objects that may obscure vision.

EMISSIONS

1. Engine exhaust from this product contains chemicals known, in certain quantities, to cause cancer, birth defects, or other reproductive harm.
2. Look for the relevant Emissions Durability Period and Air Index information on the engine emissions label.

IGNITION SYSTEM

1. This spark ignition system complies with Canadian ICES-002.

SERVICE AND MAINTENANCE

Safe Handling of Gasoline

1. Extinguish all cigarettes, cigars, pipes, and other sources of ignition.
2. Use only approved gasoline containers.
3. Never remove the gas cap or add fuel with the engine running. Allow the engine to cool before refueling.
4. Never fuel the machine indoors.
5. Never store the machine or fuel container where there is an open flame, spark, or pilot light such as near a water heater or other appliance.
6. Never fill containers inside a vehicle or on a truck bed with a plastic bed liner. Always place containers on the ground away from your vehicle before filling.
7. Remove gas-powered equipment from the truck or trailer and refuel it on the ground. If this is not possible, then refuel such equipment on a trailer with a portable container, rather than from a gasoline dispenser nozzle.
8. Keep nozzle in contact with the rim of the fuel tank or container opening at all times until fueling is complete. Do not use a nozzle lock-open device.
9. If fuel is spilled on clothing, change clothing immediately.
10. Never over-fill the fuel tank. Replace gas cap and tighten securely.
11. Use extra care in handling gasoline and other fuels. They are flammable and vapors are explosive.
12. If fuel is spilled, do not attempt to start the engine but move the machine away from the area of spillage and avoid creating any source of ignition until fuel vapors have dissipated.
13. Replace all fuel tank caps and fuel container caps securely.

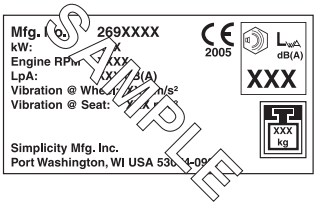
Service & Maintenance

1. Never run the unit in an enclosed area where carbon monoxide fumes may collect.
2. Keep nuts and bolts, especially blade attachment bolts, tight and keep equipment in good condition.
3. Never tamper with safety devices. Check their proper operation regularly and make necessary repairs if they are not functioning properly.
4. Keep unit free of grass, leaves, or other debris build-up. Clean up oil or fuel spillage. and remove any fuel-soaked debris. Allow machine to cool before storage.
5. If you strike an object, stop and inspect the machine. Repair, if necessary, before restarting.
6. Never make adjustments or repairs with the engine running.
7. Check grass catcher components and the discharge guard frequently and replace with manufacturer's recommended parts, when necessary.
8. Mower blades are sharp. Wrap the blade or wear gloves, and use extra caution when servicing them.
9. Check brake operation frequently. Adjust and service as required.
10. Maintain or replace safety and instructions labels, as necessary.
11. Do not remove the fuel filter when the engine is hot as spilled gasoline may ignite. Do not spread fuel line clamps further than necessary. Ensure clamps grip hoses firmly over the filter after installation.
12. Do not use gasoline containing METHANOL, gasohol containing more than 10% ETHANOL, gasoline additives, or white gas because engine/fuel system damage could result.
13. If the fuel tank must be drained, it should be drained outdoors.
14. Replace faulty silencers/mufflers.
15. Maintain or replace safety and instruction labels as necessary.
16. Use only factory authorized replacement parts when making repairs.
17. Always comply with factory specifications on all settings and adjustments.
18. Only authorized service locations should be utilized for major service and repair requirements.
19. Never attempt to make major repairs on this unit unless you have been properly trained. Improper service procedures can result in hazardous operation, equipment damage and voiding of manufacturer's warranty.
20. On multiple blade mowers, take care as rotating one blade can cause other blades to rotate.
21. Do not change engine governor settings or over-speed the engine. Operating the engine at excessive speed can increase the hazard of personal injury.
22. Disengage drive attachments, stop the engine, remove the key, and disconnect the spark plug wire(s) before: clearing attachment blockages and chutes, performing service work, striking an object, or if the unit vibrates abnormally. After striking an object, inspect the machine for damage and make repairs before restarting and operating the equipment.
23. Never place hands near the moving parts, such as a hydro pump cooling fan, when the tractor is running. (Hydro pump cooling fans are typically located on top of the transaxle).
24. Units with hydraulic pumps, hoses, or motors: WARNING: Hydraulic fluid escaping under pressure may have sufficient force to penetrate skin and cause serious injury. If foreign fluid is injected into the skin it must be surgically removed within a few hours by a doctor familiar with this form of injury or gangrene may result. Keep body and hands away from pin holes or nozzles that eject hydraulic fluid under high pressure. Use paper or cardboard, and not hands, to search for leaks. Make sure all hydraulic fluid connections are tight and all hydraulic hoses and lines are in good condition before applying pressure to the system. If leaks occur, have the unit serviced immediately by your authorized dealer.
25. WARNING: Stored energy device. Improper release of springs can result in serious personal injury. Springs should be removed by an authorized technician.
26. Models equipped with an engine radiator: WARNING: Stored energy device. To prevent serious bodily injury from hot coolant or steam blow-out, never attempt to remove the radiator cap while the engine is running. Stop the engine and wait until it is cool. Even then, use extreme care when removing the cap.

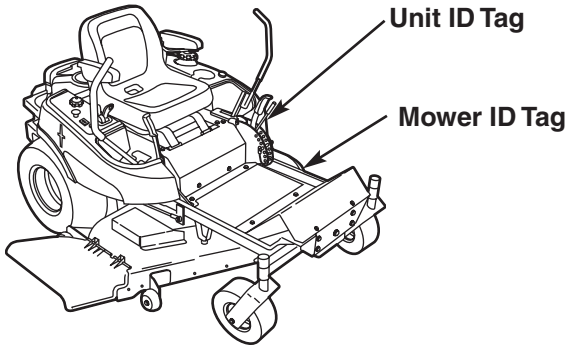
Identification Numbers



North American / CE Models



CE Models (Only)



When contacting your authorized dealer for replacement parts, service, or information you MUST have these numbers.

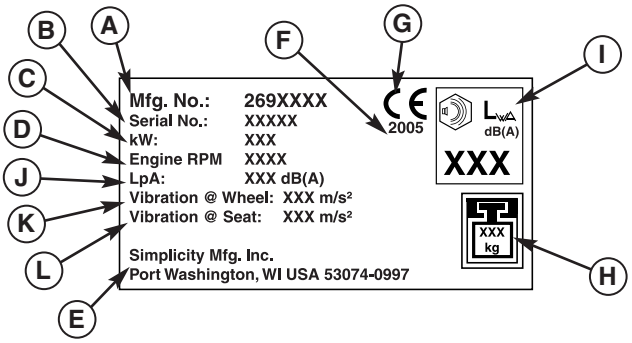
Record your model name/number, manufacturer's identification numbers, and engine serial numbers in the space provided for easy access. These numbers can be found in the locations shown.

NOTE: For location of engine identification numbers, refer to the engine owner's manual.

CE Models: Place the extra copy of the identification tag in the manual

CE Identification Tag Markings

A. Manufacturer's Identification Number
B. Manufacturer's Serial Number
C. Power Rating in Kilowatts
D. Maximum Engine Speed in Rotations per Minute
E. Manufacturer's Address
F. Year of Manufacture
G. CE Compliance Logo
H. Mass of Unit in Kilograms
I. Sound Power in Decibels ***
J. Sound Pressure at Operator's Position in Decibels **
K. Vibration at the Steering Wheel *
L. Vibration at the Seat *



This unit complies with European Harmonized Lawn Mower Standard EN 836, European Machinery Directive 98/37/EC, and European EMC Directive 89/336/EC

* Tested according to EN 836:1997/A2:2001, EN 1032: 1996, EN 1033:1995

** Tested according to EN836:1997/A2:2001

*** Tested according to 2000/14/EC

CE Models:
Place copy of
Identification Tag here.

SAFETY DECALS

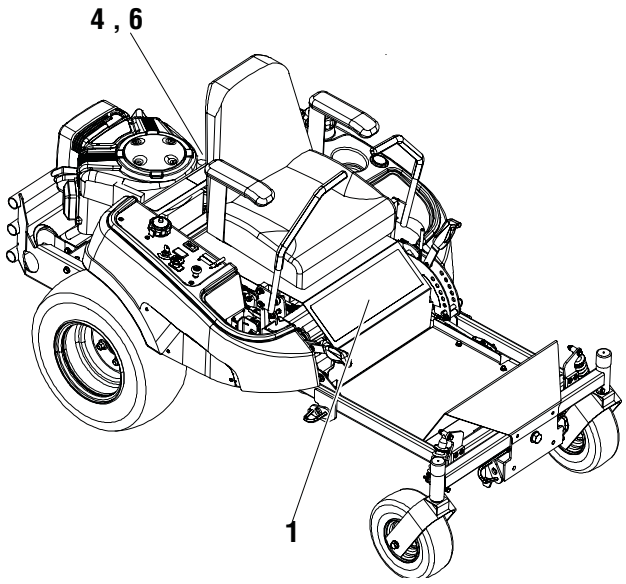
This unit has been designed and manufactured to provide you with the safety and reliability you would expect from an industry leader in outdoor power equipment manufacturing.

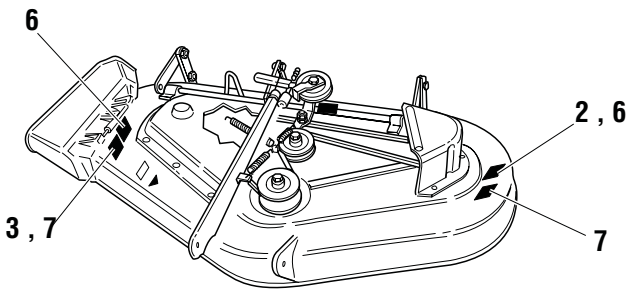
Although reading this manual and the safety instructions it contains will provide you with the necessary basic knowledge to operate this equipment safely and effectively, we have placed several safety labels on the unit to remind you of this important information while you are operating your unit.

All DANGER, WARNING, CAUTION and instructional messages on your rider and mower should be carefully read and obeyed. Personal bodily injury can result when these instructions are not followed. The information is for your safety and it is important! The safety decals below are on your rider and mower.

If any of these decals are lost or damaged, replace them at once. See your local dealer for replacements.

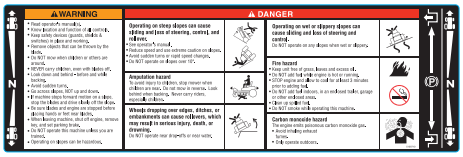
These labels are easily applied and will act as a constant visual reminder to you, and others who may use the equipment, to follow the safety instructions necessary for safe, effective operation.





NORTH AMERICAN MODELS

1



2



3



4

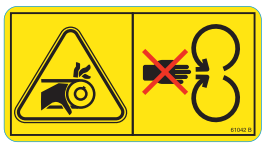


CE EXPORT MODELS

5



6



7



NORTH AMERICAN MODELS ONLY:

SAFETY INTERLOCK SYSTEM

This unit is equipped with safety interlock switches. These safety systems are present for your safety, do not attempt to bypass safety switches, and never tamper with safety devices. Check their operation regularly.

Operational SAFETY Checks

Test 1 — Engine should NOT crank if:

- PTO switch is engaged, OR
- Parking brake is not engaged, OR
- Motion control handles are not in the NEUTRAL position.

Test 2 — Engine SHOULD crank and start if:

- PTO switch is NOT engaged, AND
- Parking brake is engaged, AND
- Motion control handles are locked in the NEUTRAL position.

Test 3 — Engine should SHUT OFF if:

- Operator rises off seat with PTO engaged, OR
- Operator rises off seat with parking brake disengaged.
- Operator moves motion control handles out of their neutral positions before disengaging parking brake.

Test 4 — Blade Brake Check

Mower blades and mower drive belt should come to a complete stop within five (5) seconds after electric PTO switch is turned off (or operator rises off seat). If mower drive belt does not stop within five (5) seconds, see your dealer.

NOTE: Once the engine has stopped, PTO switch must be turned off, parking brake must be engaged, and the motion control handles must be locked in the NEUTRAL position after the operator returns to the seat in order to start the engine.

WARNING

If the unit does not pass a safety test, do not operate it. See your authorized dealer. Under no circumstance should you attempt to defeat the purpose of the safety interlock system.

EXPORT MODELS ONLY:

SAFETY INTERLOCK SYSTEM

This unit is equipped with safety interlock switches. These safety systems are present for your safety, do not attempt to bypass safety switches, and never tamper with safety devices. Check their operation regularly.

Operational SAFETY Checks

Test 1 — Engine should NOT crank if:

- PTO switch is engaged, OR
- Parking brake is not engaged, OR
- Motion control handles are not in the NEUTRAL position.

Test 2 — Engine SHOULD crank and start if:

- PTO switch is NOT engaged, AND
- Parking brake is engaged, AND
- Motion control handles are locked in the NEUTRAL position, AND
- Operator is in seat.

Test 3 — Engine should SHUT OFF if:

- Operator rises off seat under any condition.
- Operator moves motion control handles out of their neutral positions before disengaging parking brake.

Test 4 — Blade Brake Check

Mower blades and mower drive belt should come to a complete stop within five (5) seconds after electric PTO switch is turned off (or operator rises off seat). If mower drive belt does not stop within five (5) seconds, see your dealer.

NOTE: Once the engine has stopped, PTO switch must be turned off, parking brake must be engaged, and the motion control handles must be locked in the NEUTRAL position after the operator returns to the seat in order to start the engine.

WARNING

If the unit does not pass a safety test, do not operate it. See your authorized dealer. Under no circumstance should you attempt to defeat the purpose of the safety interlock system.

Safety Icons

The alert symbol ⚠ is used to identity safety information about hazards that can result in personal injury. A signal word (DANGER, WARNING, or CAUTION) is used with the alert symbol to indicate the likelihood and the potential severity of the injury. In addition, a hazard icon may be used to represent the type of hazard. An explanation of hazard levels and icons are as follows:

⚠ DANGER

This indicates a hazard which, if not avoided, **will result in serious injury or death.**

⚠ WARNING

This indicates a hazard which, if not avoided, **could result in serial injury or death.**

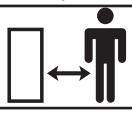
⚠ CAUTION

This indicates a hazard which, if not avoided, **might result in minor or moderate injury.**

CAUTION or NOTICE

These messages presented without the alert symbol indicate a situation where the unit or property could be damaged.

NORTH AMERICAN SAFETY ICONS

Hazard	Safety Icon	Hazard	Safety Icon
Alert		Amputation Foot in Blade	
Toxic Fumes		Thrown Objects	
Read the Manual		Maintain a safe distance	
Open flame hazard		Keep children away	
Fire Hazard		Hot surface	
Amputation Rotating Parts		Wear Protective Gear	
Amputation Hand in Blade		Pinch Point	
Rollover Hazard		Overhead Obstacles	

CE EXPORT SAFETY ICONS

Warning: Read Operator's Manual.

Read and understand the Operator's Manual before using this machine.



Danger: Thrown Objects.

This machine is capable of throwing objects and debris. Keep bystanders away.



Warning: Remove Key Before Servicing.

Remove the key and consult technical literature before performing repairs or maintenance.



Danger: Machine Rollover.

Operating on steep slopes can cause sliding and loss of steering, control and rollover. Do not use this machine on slopes greater than 10°.



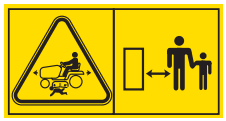
Danger: Machine Rollover.

Do not operate on any slopes when wet or slippery. Do not operate near drop-offs or near water.



Danger: Dismemberment.

This machine can amputate limbs. Keep bystanders and children away when engine is running.



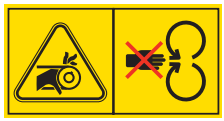
Danger: Dismemberment.

This mower deck can amputate limbs. Keep hands and feet away from blades.



Danger: Dismemberment.

This machine can crush and cut. Keep hands away from belts and pulleys.



Danger: Carbon Monoxide Poisoning.

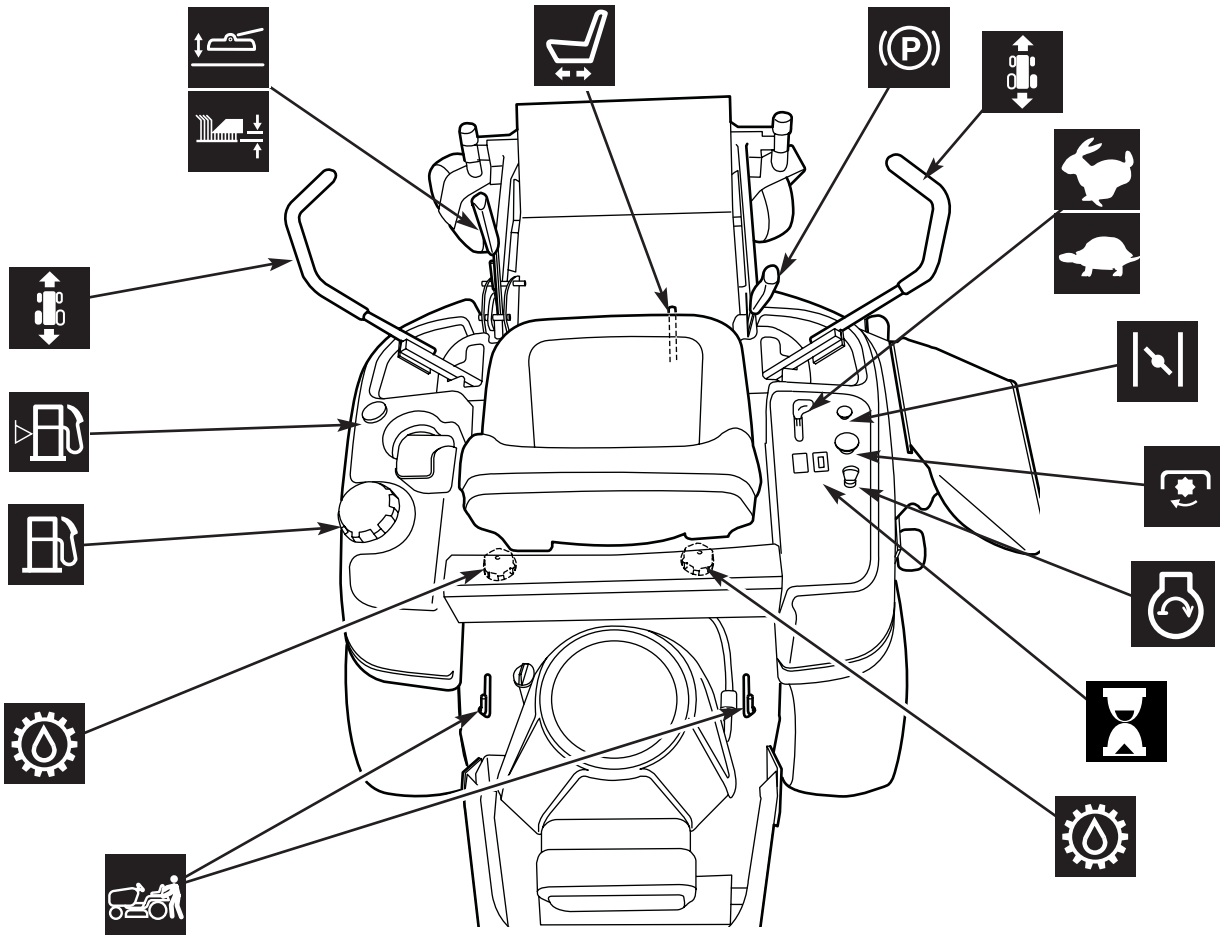
Do not operate the engine in an unventilated area.



Danger: Fire Hazard.

Keep unit free of grass, leaves and excess oil. Do not add fuel while engine is hot or running. Stop engine and allow to cool for at least 3 minutes prior to adding fuel. Do not add fuel indoors, in an enclosed trailer, garage or other enclosed areas. Clean up spilled fuel. Do not smoke while operating this machine.





CONTROL FUNCTIONS

The information below briefly describes the function of individual controls. Starting, stopping, driving, and mowing require the combined use of several controls applied in specific sequences. To learn what combination and sequence of controls to use for various tasks see the OPERATION section.

Ground Speed Levers

These levers control the ground speed of the rider. The left lever controls the left rear drive wheel and the right controls the right rear drive wheel.

Moving a lever forward increases the FORWARD speed of the associated wheel, and pulling back on a lever increases the REVERSE speed.

The further a lever is moved away from the neutral position the faster the drive wheel will turn.

See the OPERATION section for steering instructions.

Throttle Control

The throttle controls engine speed. Move the throttle forward to increase engine speed and back to decrease engine speed. Always operate at FULL throttle.

Choke

Close the choke for cold starting. Open the choke once the engine starts. A warm engine may not require choking. Move the lever forward to close the choke. Move the lever back to open the choke.

Ignition Switch

The ignition switch starts and stops the engine; it has three positions:

O	OFF	Stops the engine and shuts off the electrical system.
I	RUN	Allows the engine to run and powers the electrical system.
	START	Cranks the engine for starting.

NOTE: Never leave the ignition switch in the RUN position with the engine stopped–this drains the battery.

Hour Meter

The hour meter measures the number of hours the key has been in the RUN position.

Note: The hour meter will register the passage of time when the key is in the RUN position, even if the engine is not running. The hour meter has a self contained power source so the total hours are always visible.

PTO Switch

The PTO (Power Take-Off) switch engages and disengages attachments that use the PTO. To engage the PTO, pull UP on the switch. Push DOWN to disengage. Note that the operator must be seated firmly in the rider seat for the PTO to function.

Transmission Oil Fill

Transmission oil is added through the transmission oil expansion chambers. It also serves as extra holding capacity for oil as the transmissions heat up and the oil expands. See CHECK TRANSMISSION OIL LEVEL for oil level check and fill procedures.

Transmission Release Levers

The transmission release levers deactivate the transmissions so that the unit can be pushed by hand. See PUSHING THE UNIT BY HAND for operational information.

Seat Adjustment Lever

The seat can be adjusted forward and backward. Move the adjustment lever towards the left, slide the seat to the desired position, and release the lever.

Fuel Tank

Fuel Level Gauge

To remove the cap, turn counterclockwise. The fuel gauge is mounted in the fuel tank and indicates the amount of fuel in the tank.

Mower Height of Cut Adjustment &

Attachment Lift Control Lever

To adjust cutting height, pull the large lever back fully to lock the control in the attachment raised transport position. Position the cutting height selector pin on the appropriate hole to achieve the desired cutting height. Pull back on the small lift latch lever and large lever simultaneously, and lower the mower into cutting position.

For attachment transport lift, pull the large lift lever back fully to lock the control in the attachment raised transport position.

Parking Brake

DISENGAGE	Releases the parking brake.
ENGAGE	Locks the parking brake.

Pull the parking brake lever back to engage the parking brake. Move the lever fully forward to disengage the parking brake. *NOTE: To start the unit the parking brake must be engaged.*

GENERAL OPERATING SAFETY

Before first time operation:

- Be sure to read all information in the Safety and Operation sections before attempting to operate this tractor and mower.
- Become familiar with all of the controls and how to stop the unit.
- Drive in an open area without mowing to become accustomed to the unit brake lever or set the parking brake.

⚠ WARNING

Never operate on slopes greater than 17.6 percent (10°) which is a rise of 3-1/2 feet (106 cm) vertically in 20 feet (607 cm) horizontally. Select slow ground speed before driving onto a slope. Use extra caution when operating on slopes with a rear-mounted grass catcher. Mow across the face of slopes, not up and down, use caution when changing directions and DO NOT START OR STOP ON SLOPE.

⚠ WARNING

Never allow passengers to ride on the unit.

Before leaving the operator's position for any reason, engage the parking brake, disengage the PTO, stop the engine and remove the key.

To reduce fire hazard, keep the engine, tractor and mower free of grass, leaves and excess grease. Do not stop or park tractor over dry leaves, grass or combustible materials.

Gasoline is highly flammable and must be handled with care. Never fill the tank when the engine is still hot from recent operation. Do not allow open flame, smoking or matches in the area. Avoid over-filling and wipe up any spills.

CHECKS BEFORE STARTING

- Check that crankcase is filled to full mark on dipstick. See the engine Operator's Manual for instructions and oil recommendations.
- Make sure all nuts, bolts, screws and pins are in place and tight.
- Adjust the seat position, and make certain you can reach all controls from operator's position.
- Fill the fuel tank with fresh fuel. Refer to engine manual for fuel recommendations.

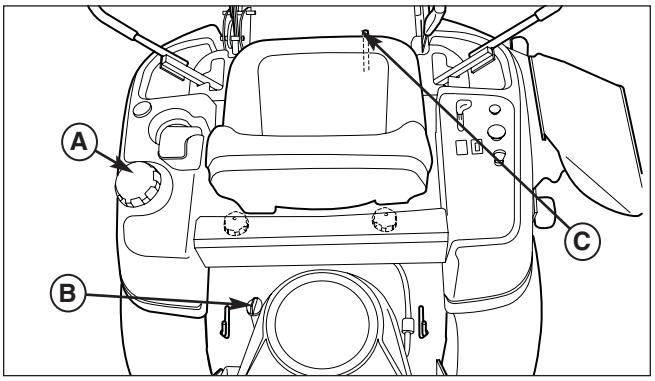
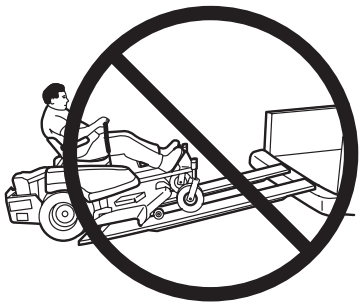


Figure 1. Pre-Start Checks
A. Fuel Tank Cap
B. Crankcase Oil Fill
C. Seat Adjustment Lever

⚠ WARNING

Do not load this zero-turn rider on a trailer or truck using two separate ramps. Only use a single ramp that is at least one foot wider than the width of the rear wheels of this rider. This rider has a zero turning radius and the rear wheels could fall off the ramps, or the rider could tip over injuring the operator or bystanders.



⚠ WARNING

If you do not understand how a specific control functions, or have not yet thoroughly read the FEATURES & CONTROLS section, do so now. Do NOT attempt to operate the tractor without first becoming familiar with the location and function of ALL controls.

STARTING THE ENGINE

1. While sitting in the operator's seat, engage the parking brake and make sure the PTO switch is disengaged and the motion control handles are locked in the NEUTRAL position.
2. ***NOTE: A warm engine may not require choking.***

 Set the engine throttle control to FAST throttle position. Then fully close the choke by pulling the knob OUT fully.
3. Insert the key into the ignition switch and turn it to START.
4. After the engine starts, gradually open the choke (push knob down fully). Reduce to half throttle speed and allow the engine to warm up.

Warm up the engine by running it for at least a minute before engaging the PTO switch or driving the rider.

5. **After warming the engine, ALWAYS operate the unit at FULL THROTTLE when mowing.**

In the event of an emergency the engine can be stopped by simply turning the ignition switch to STOP. *Use this method only in emergency situations. For normal engine shut down follow the procedure given in STOPPING THE RIDER.*

STOPPING THE RIDER AND ENGINE

1. Returning the ground speed control levers to the middle position will stop tractor movement. Pivot the levers outward and lock them in NEUTRAL.
2. Disengage the PTO by pushing down on the PTO switch.
3. Engage the parking brake by pulling the handle up until it locks into position.
4. Move the throttle control to mid-throttle position and turn the ignition key to OFF. Remove the key.

DO NOT TOW RIDER
Towing the unit will cause transmission damage. Do not use another vehicle to push or pull this unit.

PUSHING THE RIDER BY HAND

1. Disengage the PTO, engage the parking brake, turn the ignition OFF, and remove the key.
2. Locate the transmission release levers (A, Figure 2) by the rear wheels of the unit.
3. Pull both levers back and out so that they lock in the disengaged (free-wheel) position (C).
4. Disengage the parking brake.

 The tractor can now be pushed by hand.
5. After moving the tractor, re-engage the transmissions by pulling the hydraulic release levers rearward and inward to release them from the disengaged position and then allow them to move to the engaged (drive) position (B).

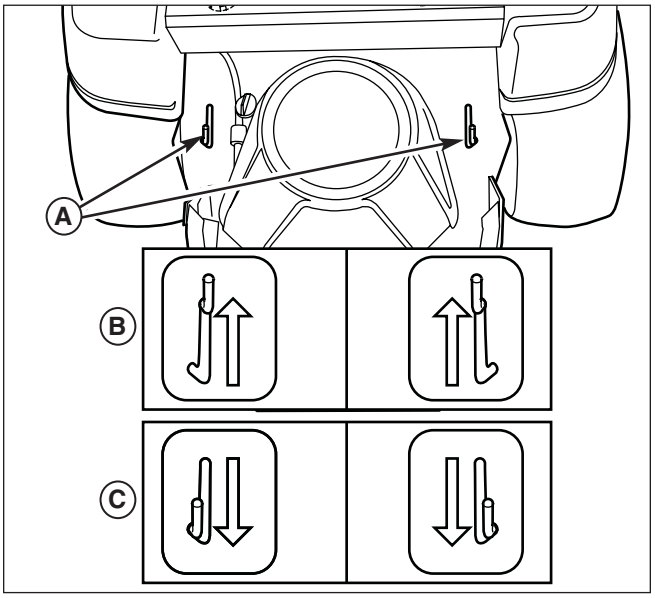


Figure 2. Transmission Release Levers
A. Transmission Release Levers
B. Engaged Position (Drive Position)
C. Disengaged Position (Free-wheel Position)

ZERO TURN DRIVING PRACTICE

The lever controls of the Zero Turn rider are responsive, and learning to gain a smooth and efficient control of the rider's forward, reverse, and turning movements will take some practice.

Spending some time going through the maneuvers shown and becoming familiar with how the unit accelerates, travels, and steers — before you begin mowing —is absolutely essential to getting the most out of the Zero Turn rider.

Locate a smooth, flat area of your lawn — one with plenty of room to maneuver. (Clear the area of objects, people and animals before you begin.) Operate the unit at mid-throttle during this practice session (ALWAYS operate at full throttle when mowing), and turn slowly to prevent tire slippage and damage to your lawn.

We suggest you begin with the Smooth Travel procedure to the right, and then advance through the forward, reverse, and turning maneuvers.

You must release the parking brake prior to moving the control levers inward.

Smooth Travel

The lever controls of the Zero Turn rider are responsive .

The BEST method of handling the ground speed control levers is in three steps — as shown in Figure 3.

FIRST place your hands onto the levers as shown.

SECOND, to go forward gradually push the levers forward with your palms.

THIRD, to speed up move the levers farther forward. To slow down smoothly, slowly move the levers toward neutral.

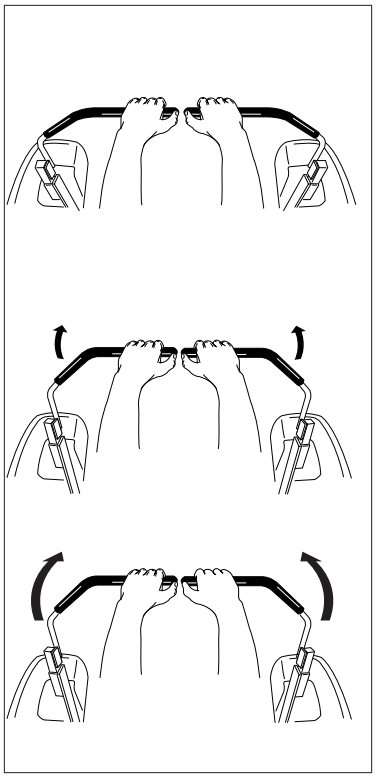


Figure 3. Move Control Levers Gradually

BASIC DRIVING

Forward Travel Practice

Gradually move both ground speed control levers — evenly FORWARD from neutral. Slow down and repeat.

NOTE: Straight forward travel takes practice. If necessary, top speed can be balance-adjusted — see the Speed Balancing Adjustment in the Adjustments section near the back of this manual.

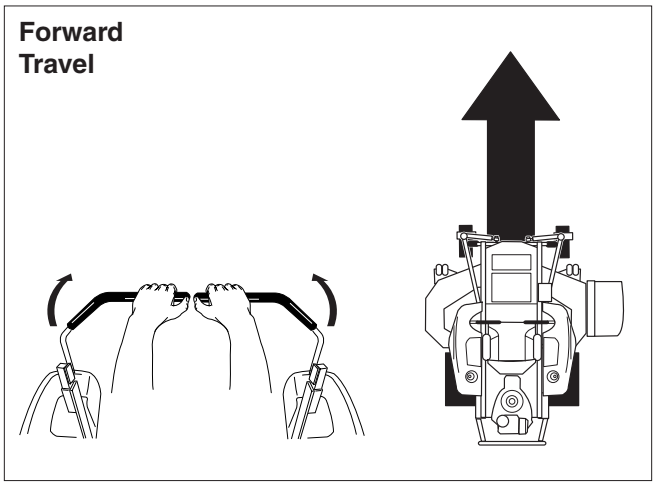


Figure 4. Forward Travel

Reverse Travel Practice

LOOK DOWN AND BEHIND, then gradually move both ground speed control levers evenly BACK from neutral. Slow down and repeat.

NOTE: Practice backing up for several minutes before attempting to do so near objects. The rider turns sharply in reverse as well as forward, and backing up straight takes practice.

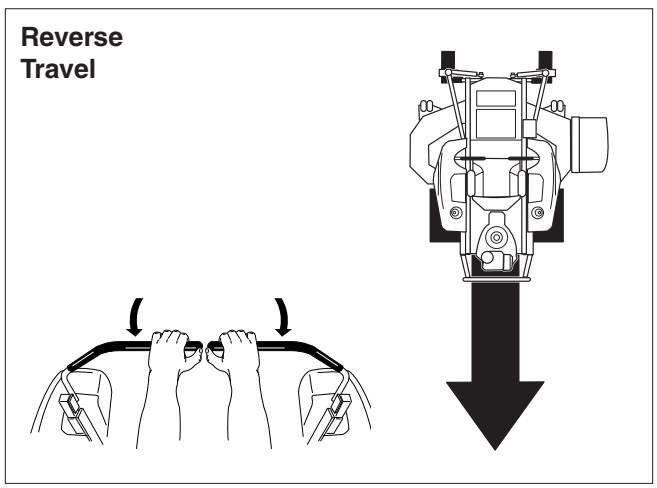


Figure 5. Reverse Travel

Practice Turning Around a Corner

While traveling forward bring one handle gradually back toward neutral. Repeat several times.

NOTE: To prevent pivoting directly on the tire tread, it is best to keep both wheels going at least slightly forward.

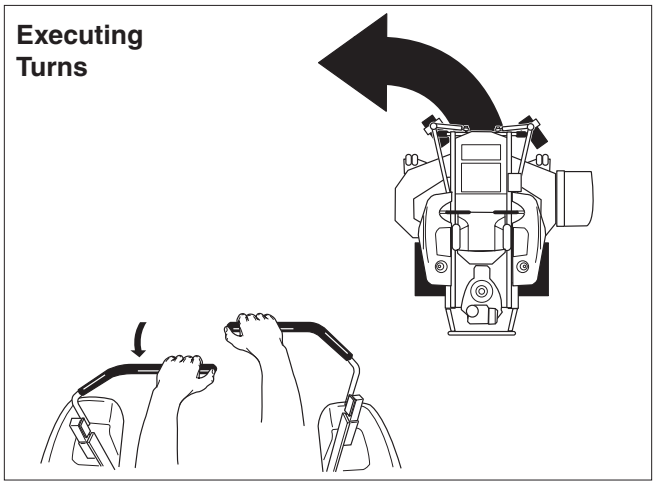


Figure 6. Turning Around a Corner

Practice Turning In Place

To turn in place, "Zero Turn," gradually move one ground speed control lever forward from neutral and one lever back from neutral simultaneously. Repeat several times.

NOTE: Changing the amount each lever is pulled—forward or back, changes the "pivot point" you turn on.

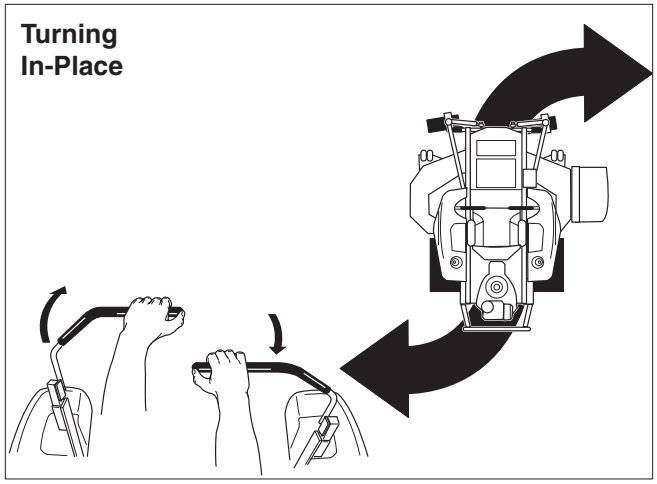


Figure 7. Turning in Place

ADVANCED DRIVING

Executing an End-Of-Row Zero Turn

Your Zero Turn Rider's unique ability to turn in place allows you to turn around at the end of a cutting row rather than having to stop and Y-turn before starting a new row.

For example, to execute a left end-of row zero turn:

1. Slow down at the end of the row.
2. Move the RIGHT ground speed control lever forward slightly while moving the LEFT ground speed control lever back to center and then slightly back from center.
3. Begin mowing forward again.

This technique turns the rider LEFT and slightly overlaps the row just cut — eliminating the need to back up and re-cut missed grass.

As you become more familiar and experienced with operating the Zero Turn rider, you will learn more maneuvers that will make your mowing time easier and more enjoyable.

Remember, the more you practice, the better your control of the Zero Turn will be!

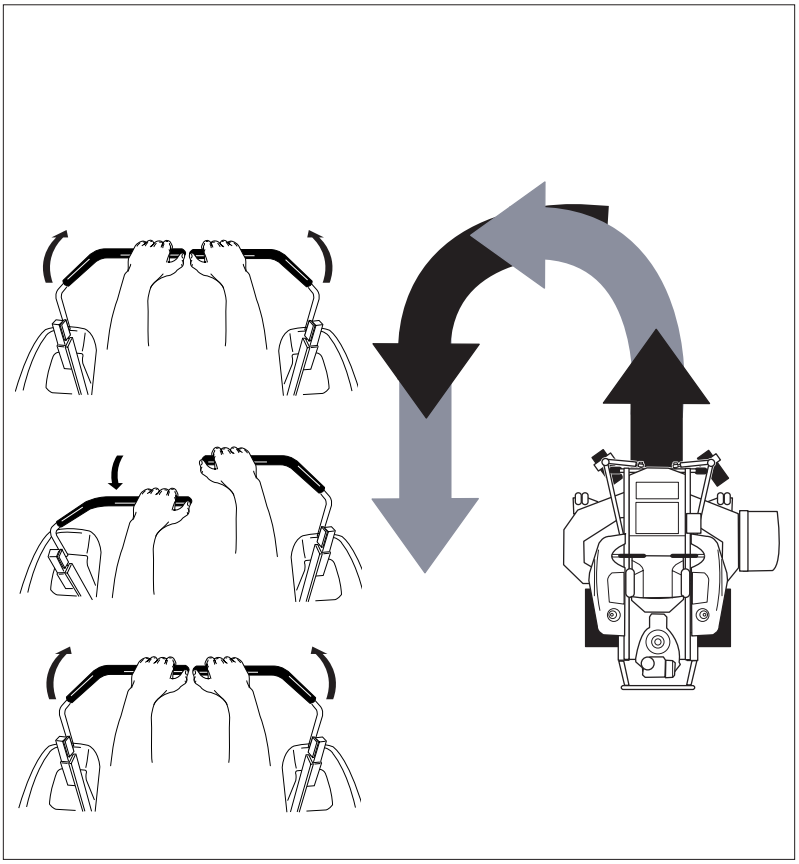


Figure 8. Executing an End-Of-Row Turn

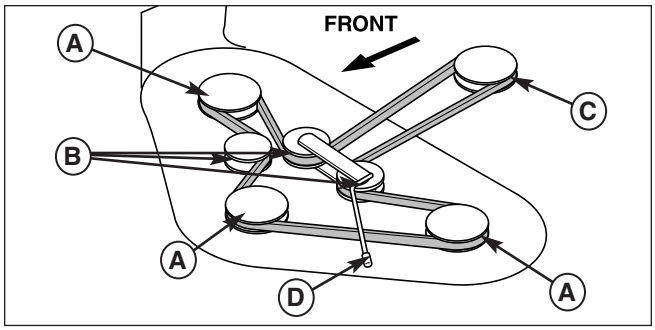


Figure 9. Mower Belt Routing
A. Arbor Pulleys
B. Back-Side Idlers
C. PTO Pulley
D. Belt Tension Release Lever

MOWER REMOVAL AND INSTALLATION

NOTE: Perform mower deck installation and removal on a hard flat surface such as a concrete floor.

Removal

1. Disengage the PTO, engage the parking brake, turn off the ignition, remove the key, and wait for all moving parts to stop.
2. Remove the cutting height pin and lower the attachment lift to its lowest position.
3. Pull the lever (A, Figure 10) towards the rear of the machine to release tension on the mower belt. Secure the lever in the guard notch (B) and remove the mower belt from the PTO pulley (C, Figure 9).
4. Pull the hair pins (C & D, Figure 11) and disconnect the deck leveling links (I & J). Pull the hair pin and disconnect the roller bar connecting rod (M). Pull and turn the rod locks (A, B, E & F) to release the rod ends.
5. Lift the front of the deck using a 2 x 4 as a lever, pull the handle (G) forward to release the front hangers rod ends (H), then push rearward to release the rear rod ends.
6. Pivot the front wheels out of the way and slide the mower deck out from under right side of the unit.

Installation

1. Disengage the PTO, engage the parking brake, turn off the ignition, remove the key, and wait for all moving parts to stop.
2. Remove the cutting height pin and lower the attachment lift to its lowest position.
3. Pivot the front wheels out of the way and slide the mower deck under the unit.
4. Install the leveling links and hair pins (I, J, C & D).
5. Lift the rear of the mower deck and install the rear lift rods (K & L) and secure with the rear rod locks (E & F).
6. Install the roller bar connecting rod (M) and the hair pin.
7. Lift the front of the deck using a 2 x 4 as a lever, pull the handle (G) to align the front hanger rod ends (H) with the slots and secure with the front rod locks (A & B).

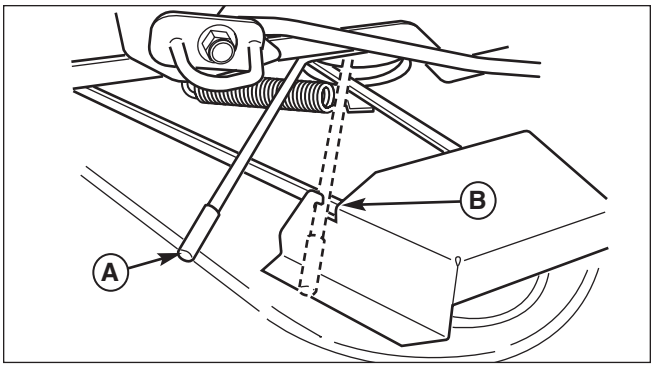


Figure 10. Release Belt Tension
A. Belt Tension Release Lever
B. Guard Notch

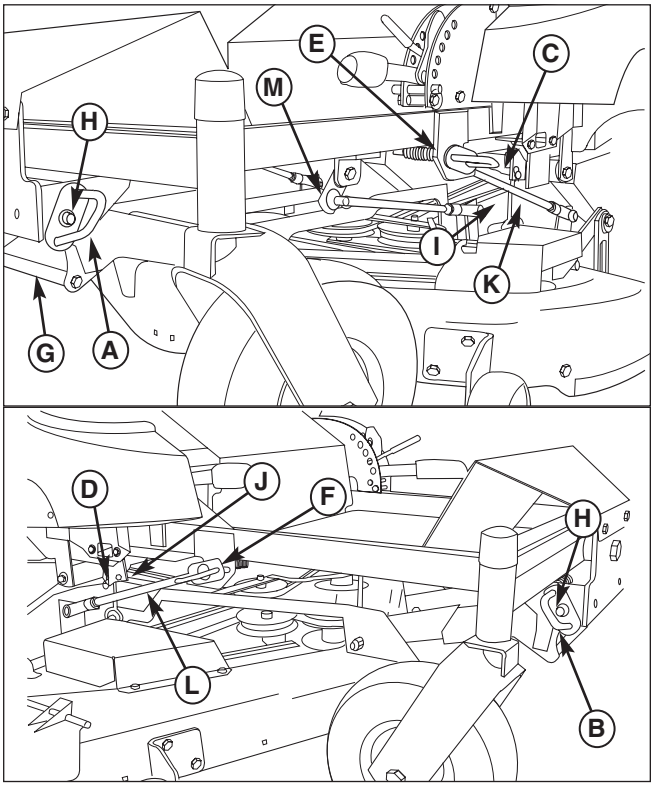


Figure 11. Mower Installation & Removal
A. Left Front Rod Lock
B. Right Front Rod Lock
C. Left Leveling Link Hair Pin
D. Right Leveling Link Hair Pin
E. Left Rear Rod Lock
F. Right Rear Rod Lock
G. Handle
H. Front Hanger Rod Ends
I. Left Leveling Link
J. Right Leveling Link
K. Left Rear Lift Rod
L. Right Rear Lift Rod
M. Roller Bar Connecting Rod (select models)

8. Install the belt as shown in Figure 9.
9. Release tension from the tensioning idler pulley using the belt tension lever (A, Figure 10) and make sure the belt is seated properly in all pulleys.

MOWING

Before mowing, set the cutting height as described in the *Troubleshooting, Adjustments & Service* section.

1. Engage the parking brake. Make sure the PTO switch is disengaged and the motion control lever is in the NEUTRAL position.
2. Start the engine (see STARTING THE ENGINE).
3. Set the throttle to FULL.
4. Engage the PTO by pulling up on the PTO switch.
5. Begin mowing. See *Mowing Recommendations* section for tips on mowing patterns and lawn care. See Trouble Shooting section for information on trouble shooting common cutting problems.
6. When finished, shut off the PTO.
7. Stop the engine (see STOPPING THE TRACTOR AND ENGINE).

MOWING RECOMMENDATIONS

Several factors can affect how well your machine cuts grass, Following proper mowing recommendations can improve the performance and life of your machine.

Height of Grass

Often cutting height is a matter of personal preference. Typically, you should mow the grass when it is is between three and five inches high. The proper cutting height range for a specific lawn will depend upon several factors, including the type of grass, the amount of rainfall, the prevailing temperature, and the lawn's overall condition.

Cutting the grass too short causes weak, thin grass plants, which are easily damaged by dry periods and pests. Cutting too short is often more damaging than allowing the grass to be slightly higher.

Letting grass grow a bit longer—especially when it is hot and dry—reduces heat build-up, preserves needed moisture and protects the grass from heat damage and other problems. However, allowing grass to grow too high can cause thin turf and additional problems.

Cutting off too much at one time shocks the plant's growth system and weakens the grass plants. **A good rule of thumb is the 1/3 rule: to cut no more than one third of the grass height, and never more than 1 inch at a time.**

The amount of grass you are able to cut in one pass is also effected by the type of mowing system you are using (for example, broadcasting with side discharge decks can process a much larger volume of grass than mulching does).

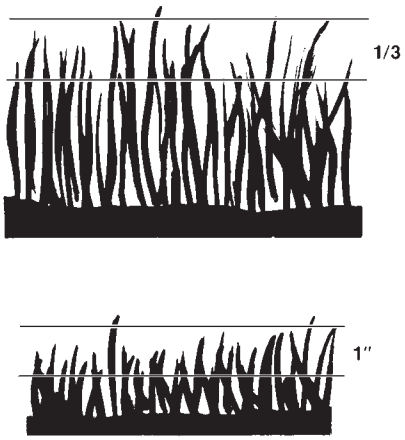


Figure 12. Proper Cutting Height

Tall Grass Requires Incremental Cutting

For extremely tall grass, set the cutting height at maximum for the first pass, and then reset it to the desired height and mow a second or third time.

Don't cover the grass surface with a heavy layer of clippings. Consider using a grass collection system and starting a compost pile.

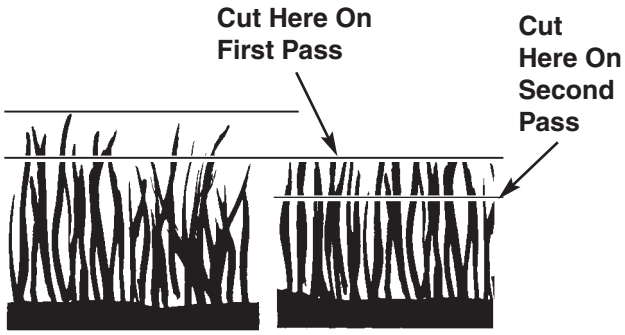


Figure 13. Incremental Cutting

When and How Often to Mow

The time of day and condition of the grass greatly affect the results you'll get when mowing. For the best results, follow these guidelines:

1. Mow when the grass is between three and five inches high.
2. Mow with sharp blades. Short clippings of grass one inch or shorter decompose more quickly than longer blades. Sharp mower blades cut grass cleanly and efficiently, preventing frayed edges which harm the grass.
3. Mow at time of day when the grass is cool and dry. Late afternoon or early evening often provide these ideal mowing conditions.
4. Avoid mowing after rain or even heavy dew, and never mulch when the grass is wet (moist grass does not mulch well, and clumps beneath the mower deck).

Mowing Patterns

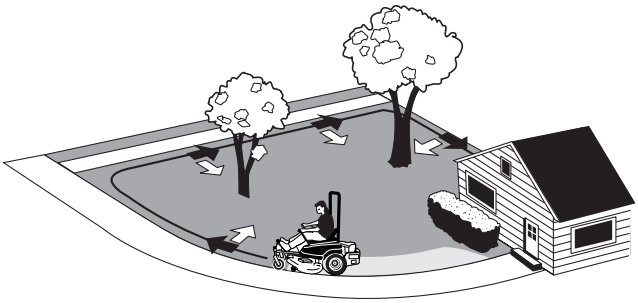
Always start mowing on a smooth, level area.

The size and type of area to be mowed will determine the best mowing pattern to use. Obstructions such as trees, fences and buildings, and conditions such as slopes and grades must also be considered.

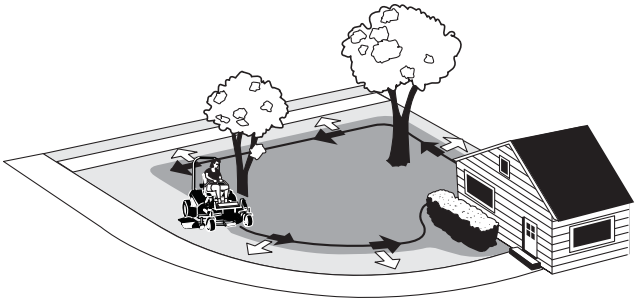
1. Cut long straight strips overlapping slightly.
2. Where possible, change patterns occasionally to eliminate matting, graining or a corrugated appearance.
3. For a truly professional cut, mow across the lawn in one direction, then recut the lawn by mowing perpendicular to the previous cut.

Note: Always operate the engine at full throttle when mowing.

If you hear the engine slowing down, you are mowing too fast—using a slower ground speed will improve the cutting efficiency of the blades and prevents many common cutting problems. Use an appropriate ground speed for the thickness and height of the grass you are cutting (3rd gear or slower for manual gear models). If you hear the engine slowing down you are mowing too fast, use a slower ground speed.



Where possible, make one or two passes around the outside of the area discharging the grass INTO the lawn to keep the cut grass off fences and walks.



The remainder of the mowing should be done in the opposite direction so that the clippings are dispersed OUT onto the area of lawn previously cut.

MOWING METHODS

Proper Broadcast Mowing

Broadcasting, or side-discharging, disperses fine clippings evenly over the entire lawn. Many golf courses use this method. Your mower has a deep dish deck to allow freer circulation of clippings so they are broadcast evenly over the lawn.

ENGINE SPEED & GROUND SPEED FOR BROADCASTING

Always operate the engine at full throttle when mowing. If you hear the engine slowing down, you are mowing too fast—using a slower ground speed will improve the cutting efficiency of the blades and prevents many common cutting problems.

ALWAYS use an appropriate ground speed for the thickness and height of the grass you are cutting (3rd gear or slower for manual gear models). If you hear the engine slowing down you are mowing too fast, use a slower ground speed.

HOW MUCH GRASS TO CUT OFF WHEN BROADCASTING

Mow when the grass is 3-5 inches long. Do not cut the grass shorter than 2 to 2-1/2 inches. Do not cut off more that 1 inch of grass in a single pass.

Proper Mulching

Mulching consists of a mower deck which cuts and recuts clippings into tiny particles and which then blows them down INTO the lawn. These tiny particles decompose rapidly into by-products your lawn can use. UNDER PROPER CONDITIONS, your mulching mower will virtually eliminate noticeable clippings on the lawn surface.

NOTE: When mulching under heavy cutting conditions, a rumbling sound may be present and is normal.

MULCHING REQUIRES EXCELLENT MOWING CONDITIONS

Mulching mowers cannot function properly if the grass is wet, or if the grass is simply to high to cut. Even more than normal mowing, mulching requires that the grass be dry and the the appropriate amount is cut.

Do not use the mower as a mulching mower during the first two or three mowings in the spring. The long grass blades, quick growth, and often wetter conditions are more suitable for broadcasting (side-discharging) or grass bagging operation.

ENGINE SPEED & GROUND SPEED FOR BROADCASTING

Use full engine throttle matched with a slow ground speed so that clippings will be finely cut. Ground speed while mulching should be HALF of the speed that would be used when broadcasting (side discharging) under similar conditions. Since mulching requires more horsepower than broadcasting, using a slower ground speed is vitally important for proper mulching operation.

HOW MUCH GRASS TO MULCH

The best mulching action typically results from cutting only the top 1/2 inch to 3/4 inch of grass blade. This provides short clippings which decompose properly (much more quickly than longer clippings). The ideal cutting height will vary with climate, time of year, and quality of your lawn. We recommend that you experiment with both the cutting height and ground speed until you achieve the best cut. Start with a high cutting height and using progressively lower settings until you find a cutting height that is matched to your mowing conditions and preferences.

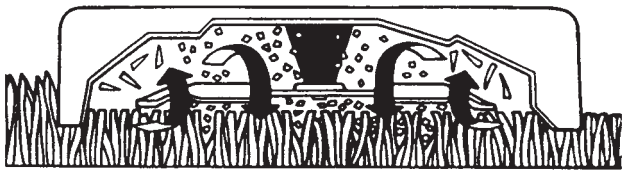


Figure 14. Mulching Action

ATTACHING A TRAILER

The maximum weight of a towed trailer should be less than 200 lbs (91kg). Secure the trailer with a appropriately sized clevis pin (A, Figure 15) and clip (B).

Excessive towed loads can cause loss of traction and loss of control on slopes. Reduce towed weight when operating on slopes. The surface being driven on greatly impacts traction and stability. Wet or slippery surfaces can greatly reduce traction and the ability to stop or turn. Carefully evaluate the surface conditions before operating the unit and trailer, and never operate on slopes greater than 10°. See SLOPE OPERATION and TOWED EQUIPMENT in the safety section of this manual for additional safety information.

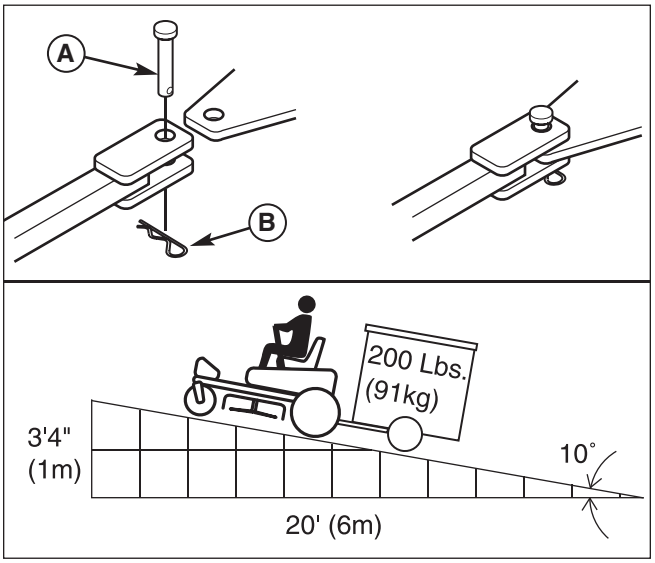


Figure 15. Trailer Weight Recommendations
A. Clevis Pin
B. Clip

MAINTENANCE SCHEDULE & PROCEDURES

The following schedule should be followed for normal care of your rider and mower. You will need to keep a record of your operating time. Determining operating time is easily accomplished by observing the elapsed time recorded by the hour meter.

SAFETY ITEMS	Before Each Use	Every 5 Hours	Every 25 Hours	Every 100 Hours	Every 200 Hours	Spring & Fall
Check Safety Interlock System	•					•
Check Rider Brakes	•					•
Check Mower Blade Stopping Time				•		•
RIDER MAINTENANCE ITEMS	**Before Each Use**	**Every 5 Hours**	**Every 25 Hours**	**Every 100 Hours**	**Every 200 Hours**	**Spring & Fall**
Check Rider / Mower for loose hardware		•				
Check / Clean Engine Cooling Fins			•			
Check / Adjust PTO Clutch				•		
Lubricate Rider & Mower **			•			
Clean Battery & Cables				•		
Check Tire Pressure			•			
Clean Deck & Check/Replace Mower Blades**			•			
Check Transmission Oil	•					
Change Transmission Oil Filter **					•	
ENGINE MAINTENANCE ITEMS	**Before Each Use**	**Every 5 Hours**	**Every 25 Hours**	**Every 100 Hours**	**Every 200 Hours**	**Spring & Fall**
Check Engine Oil Level	•					
Check / Change Engine Air Filter *						
Change Engine Oil & Filter *						
Inspect Spark Plug(s) *						
Check / Replace Fuel Filter *						

* Refer to engine owner's manual. Change original engine oil after initial break-in period.
** More often in hot (over 85° F: 30° C) weather or dusty operating conditions.

LUBRICATION

Lubricate the unit at the following lubrication points shown in Figure 16.

Grease:



- front caster wheel axles
- front caster yokes
- roller straps (deck lift pivots)
- mower deck idler arm pivot
- mower deck arbors

Use grease fittings when present. Disassemble parts to apply grease to moving parts when grease fittings are not installed.

Not all greases are compatible. Use automotive-type lithium grease.

Oil:



- control handle pivots
- discharge chute hinge

Generally, all moving metal parts should be oiled where contact is made with other parts. Keep oil and grease off belts and pulleys. Remember to wipe fittings and surfaces clean both before and after lubrication.

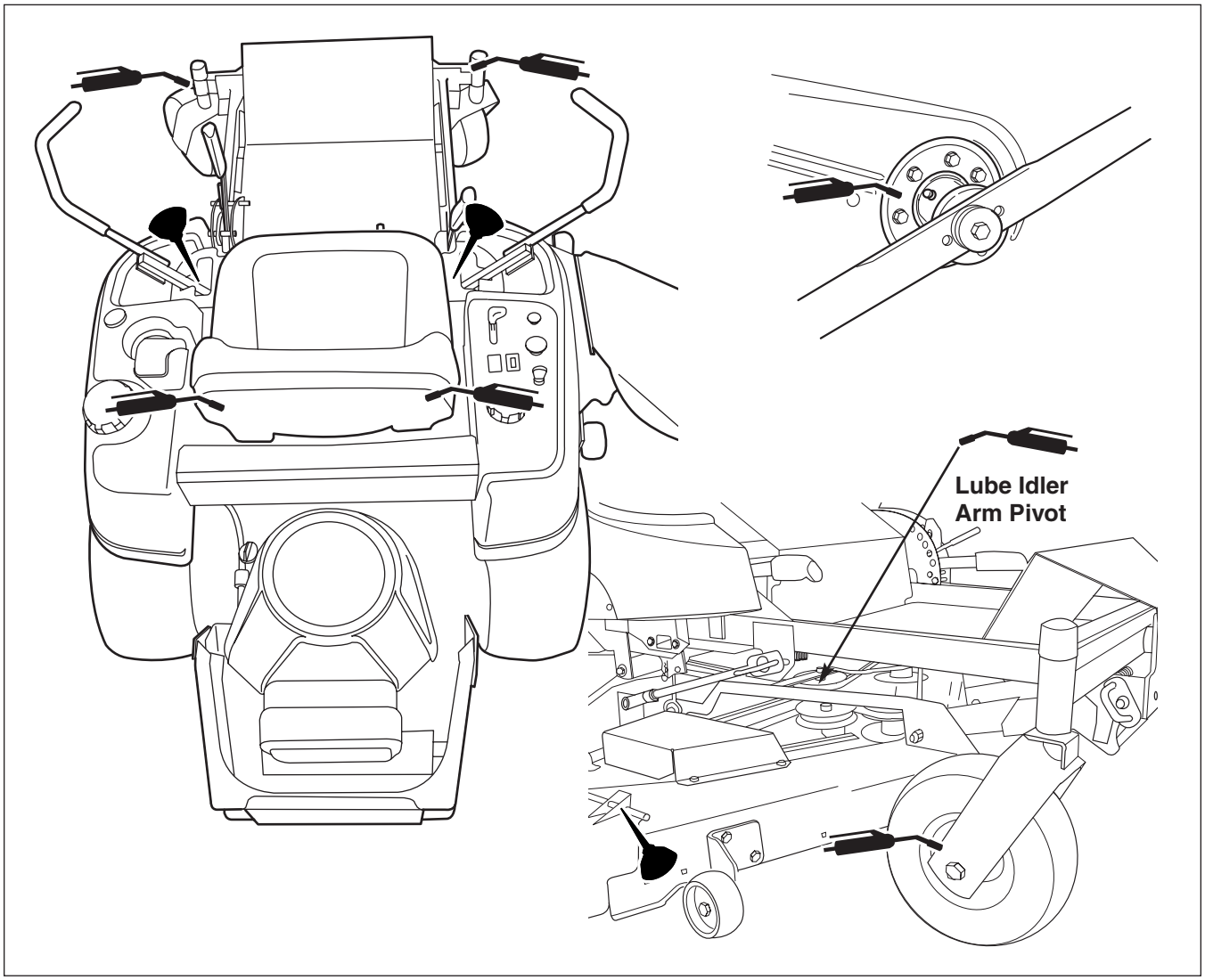


Figure 16. Lubrication

SERVICING THE MOWER BLADES

Removing the Mower Blade

⚠ CAUTION

Avoid injury! Mower blades are sharp.

• Always wear gloves when handling mower blades or working near blades.

1. See Figure 17. To remove the mower blade, wedge a wooden block between the mower blade and the mower deck housing to keep the mower blade from turning, then remove the mower blade and the blade retaining hardware.

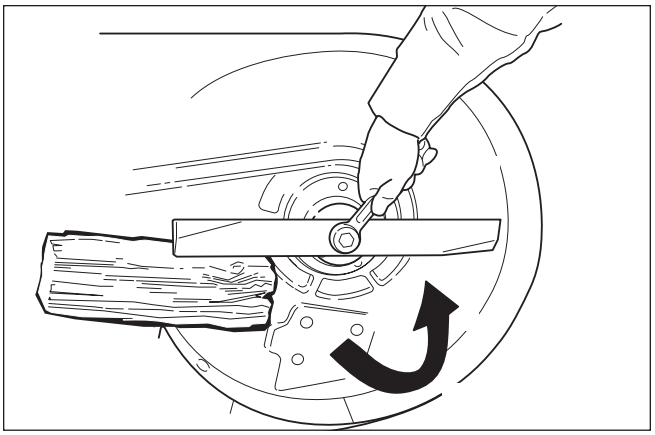


Figure 17. Loosening the Mower Blade for Removal

Inspecting the Mower Blades

⚠ DANGER

Avoid injury! A worn or damaged blade can break, and a piece of the mower blade could be thrown into the operator's or bystander's area, resulting in serious personal injury or death.

• Inspect the mower blade every 25 hours or at least once a year.

• If the mower blade hits a solid object, stop the engine immediately and inspect the mower blade.

• Never weld or straighten bent mower blades.

1. Remove the mower blade from the unit. *See Removing the Blade.*
2. Inspect the mower blade (Figures 18 & 19). **Discard the mower blade if it has any of the below conditions.**

 A.) Has more than .5" (12,7 mm) of the mower blade metal removed from previous sharpening or wear (D, Figure 27).

 B.) The air lifts are excessively eroded (B & C, Figure 19) and the notch (C) is .25" (6,35 mm) deep or greater.

 C.) Mower blade is bent or broken.
3. If the cutting edges are not sharp or have nicks, sharpen the blades. *See Sharpening the Mower Blades.*

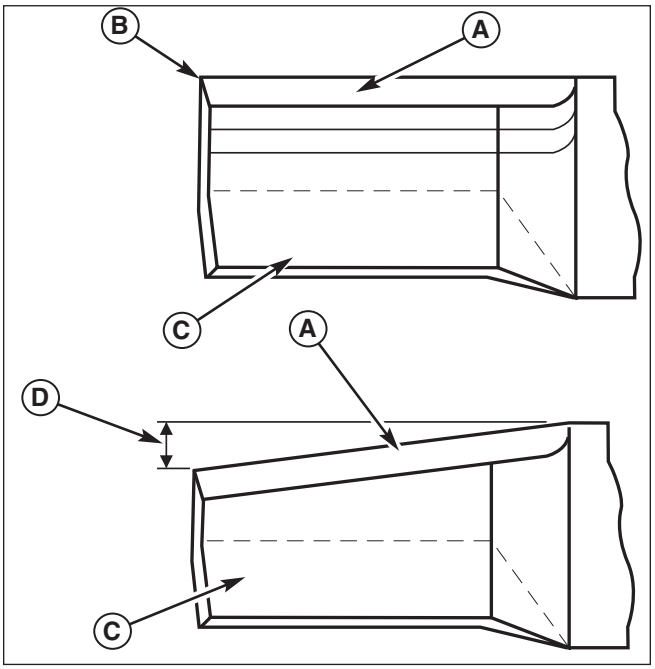


Figure 18. inspecting the Mower Blade Tips
A. Mower Blade Cutting Edge
B. Square Corner
C. Air Lift
D. Wear Measurement - DISCARD Mower Blade If greater than .5" (12,7 mm)

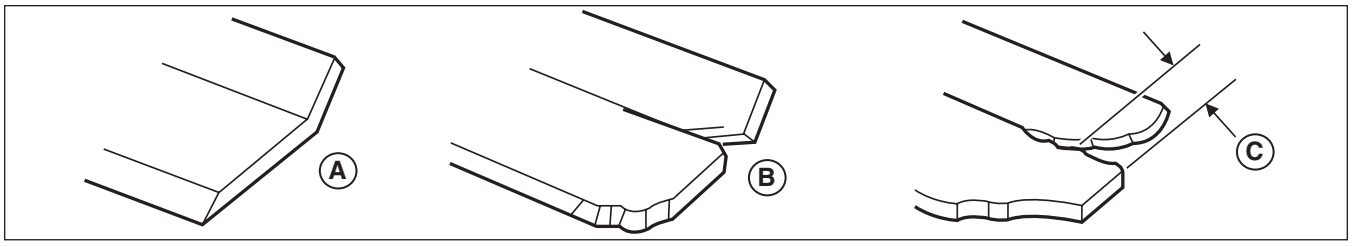


Figure 19. inspecting the Mower Blade Air Lifts
A. New Mower Blade B. Mower Blade at Wear Limit (A notch begins to form)
C. Mower Blade in Dangerous Condition (Notch measures .25" (6,35 mm) or greater DO NOT USE. Replace with new mower blade.)

Sharpening the Mower Blade

⚠ CAUTION

Avoid injury! Mower blades are sharp.

- **Always wear gloves when handling the mower blades.**
- **Always wear safety eye protection when grinding.**

1. Sharpen the mower blades with grinder, hand file, or electric blade sharpener.
2. Sharpen the mower blade by removing an equal amount of material from each end of the mower blade.
3. Keep the original bevel (A, Figure 20) when grinding. DO NOT change the mower blade bevel.
4. The mower blade should have a maximum 1/64" (0,40 mm) cutting edge (B) or less.
5. Balance the mower blades before installing.

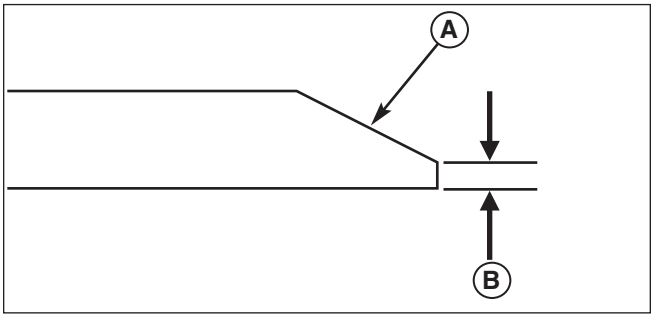


Figure 20. Sharpening the Mower Blade
A. Mower Blade Bevel
B. Mower Blade Cutting Edge

Balancing the Mower Blades

⚠ CAUTION

Avoid injury! Keep mower blades balanced.

- **An unbalanced mower blade can create excessive vibration and damage the unit or cause mower blade failure.**

1. Clean the mower blade to remove any dried grass or other debris.
2. See Figure 21. Put the mower blade on a nail in a vise and turn the mower blade to the horizontal position.
3. Check the balance of the mower blade. If either end of the mower blade moves downward, sharpen the heavy end until the mower blade is balanced. *See Sharpening the Mower Blades* for proper sharpening instructions.
4. Repeat the process until the mower blade remains in the horizontal position.

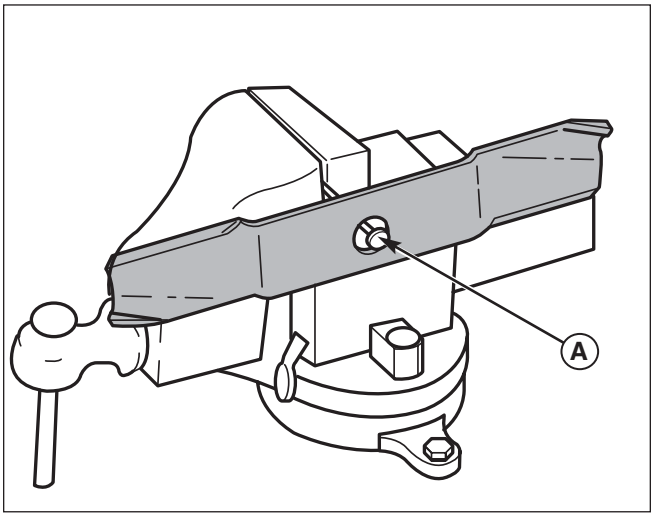


Figure 21. Balancing the Mower Blade
A. Nail

Reinstalling the Mower Blades

⚠ WARNING

For your personal safety, blade mounting capscrews must each be installed with a hex/spline washer and spring washer, then securely tightened. Torque blade mounting capscrew to 45-55 ft. lbs. (61-75 N.m.)

1. Reinstall each mower blade with the air lifts pointing up towards the mower deck as shown in Figure 22. Wedge a wooden block between the mower blade and the mower deck housing, and secure the mower blade with the mower blade mounting bolt, hex washer and spring washer (A, B & E, Figure 22) and torque to 45-55 ft. lbs. (61-75 N.m).

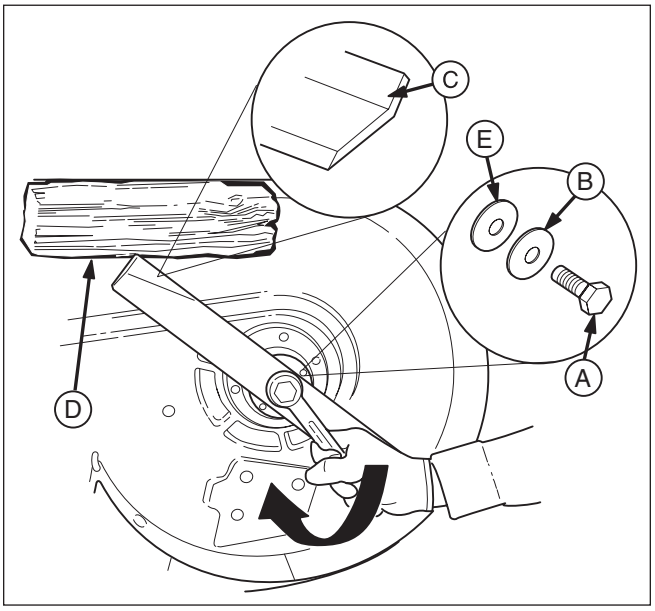
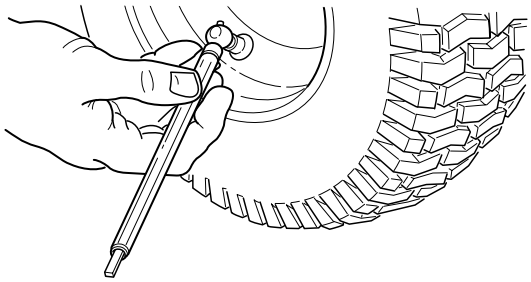


Figure 22. Tightening the Mower Blade for Installation
A. Mower Blade Mounting Bolt
B. Hex Washer
C. Mower Blade Air Lift (Install With Points Up)
D. 4 X 4 Wooden Block
E. Spring Washer

CHECK TIRE PRESSURES

Tire pressure should be checked periodically, and maintained at the levels shown in the chart. Note that these pressures may differ slightly from the “Max Inflation” stamped on the side-wall of the tires. The pressures shown provide proper traction, improve cut quality, and extend tire life.



Tire	Pressure
Front	40 psi (2,76 bar)
Rear	15 psi (1,03 bar)

Figure 23. Checking Tire Pressure

ADDING FUEL

To add fuel:

1. Stop the engine and allow to cool for at least 3 minutes.
2. Remove the fuel cap (see A, Figure 24).
3. Fill the tank to the bottom of the filler neck. This will allow for fuel expansion.

NOTE: Do not overfill. Refer to your engine manual for specific fuel recommendations.

4. Install and hand tighten the fuel cap.

FUEL FILTER

The fuel filter is located in the fuel line between the fuel tank and fuel pump. If the filter is dirty or clogged, replace as follows:

1. Disconnect the negative battery cable.
2. Place a container below the filter to catch spilled fuel.
3. Using pliers, open and slide the hose clamps from the fuel filter (C, Figure 24).
4. Remove the hoses from the filter.
5. Install the new filter in the proper flow direction in the fuel line.
6. Secure with the hose clamps.
7. Reconnect the negative battery cable when finished.

⚠ WARNING

Gasoline is highly flammable and must be handled with care. Never fill the tank when the engine is still hot from recent operation. Do not allow open flame, smoking or matches in the area. Avoid over-filling and wipe up any spills. Do not remove fuel filter when engine is hot, as spilled gasoline may ignite. DO NOT spread hose clamps further than necessary. Ensure clamps grip hoses firmly over filter after installation.

Do not use gasoline containing METHANOL, gasohol containing more than 10% ethanol, gasoline additives, premium gasoline, or white gas because engine/fuel system damage could result.

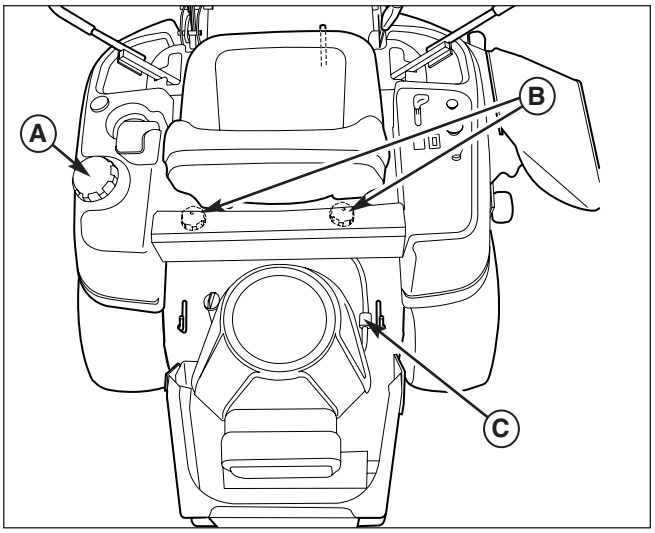


Figure 24. Maintenance
A. Fuel Tank Cap
B. Transmission Oil Caps
C. Fuel Filter

CHANGE ENGINE OIL & FILTER

1. Warm the engine by running for a few minutes. (Refer to the engine operator's manual for oil & filter replacement instructions)
2. The oil drain hose (A, Figure 25) is located on the left side of the engine. Remove the oil drain hose from its storage position and re-position the oil drain hose over the side of the engine deck and place a small pan beneath it to catch the old engine oil.
3. Using the appropriate tools, remove the cap (C) from the oil drain tube.
4. After draining, replace the cap and wipe up any spilled oil. Reinstall the oil drain hose into the storage position (route around to the front of the engine) to retain the hose during normal operation.
5. Place an absorbent shop cloth under the engine oil filter (B). Remove the oil filter and discard.
6. Using a drop of oil (see the engine operator's manual for oil recommendations) on your finger tip, wet the rubber gasket on the bottom of the new filter.
7. Turn the filter clockwise until the rubber gasket meets the filter base. Then turn 1/2" to 3/4" of a turn more.
8. Add engine oil (Refer to the engine operator's manual for oil filling instructions.)
9. Remove the shop cloth and wipe up any spilled oil.

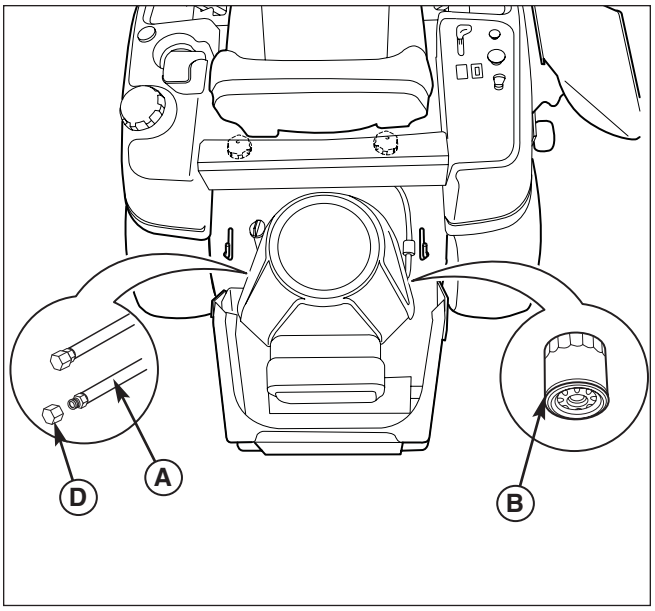


Figure 25. Change Engine Oil & Filter
A. Oil Drain Tube
B. Oil Filter
C. Cap

ENGINE MAINTENANCE

Refer to engine owner's manual for all engine maintenance procedures and recommendations.

CHECK / FILL TRANSMISSION OIL

Oil Type: 20W-50 conventional detergent motor oil.

1. Check the oil level when the unit is cold. Raise the seat plate to gain access to the transmission oil reservoirs (A, Figure 26). The oil should be up to the “FULL COLD” mark (B). If the oil is below this level, proceed to step 2.
2. Before removing the reservoir cap, make sure the area around the reservoir cap and fill neck of the reservoir is free of dust, dirt, or other debris. Remove the reservoir cap.
3. Add oil up to the “FULL COLD” mark (B, Figure 26).
4. Reinstall the reservoir cap.

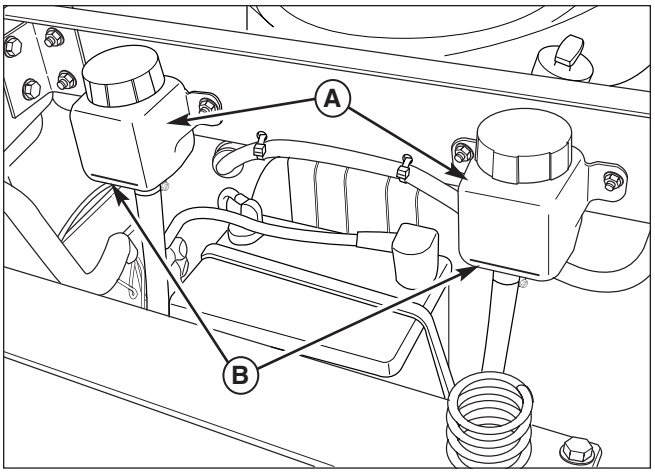


Figure 26. Transmission Oil Reservoirs
A. Transmission Oil Reservoirs
B. “FULL COLD” Mark

TRANSMISSION OIL FILTER CHANGE

Change Interval: Every 200 Hours

1. Locate the transmission oil filters (A, Figure 27) underneath the rear of the machine on the transmissions.
2. Remove the three 1/4” filter guard screws (C) and the filter guard (B).
3. Clean the area around the filter base and remove the filter.
4. Apply a film of new oil to the gasket of the new replacement filter. After the oil has drained, thread the new filter onto the filter base until the gasket makes contact, then tighten 3/4 of a turn more.
5. Reinstall the filter guard with the three 1/4” filter guard screws
6. Using a hex bit swivel socket or a modified allen wrench remove the top port plug from the transmissions.
7. Remove the transmission reservoir cap and fill with oil until oil appears at the bottom of the transmission’s top port (approximately 2 qts (1,89L).
8. Reinstall the top port plug and tighten to 15 ft lbs (20,38 Nm).
9. Continue to add oil to the transmission oil reservoirs until the oil lever reaches the “FULL COLD” mark. Reinstall the oil reservoir cap.
10. Repeat this process for the other side of the machine.

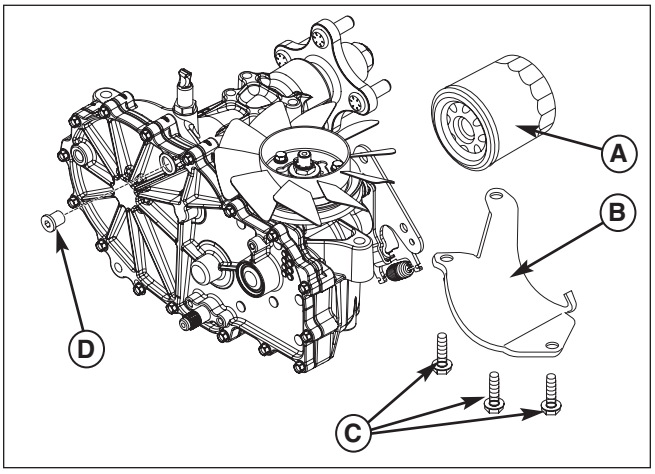


Figure 27. Transmission (Left Side Shown.)
A. Transmission Oil Filter
B. Filter Guard
C. 1/4” Filter Guard Screws
D. Top Port Plug

11. Run the unit for several minutes and check the transmission oil level.

IMPORTANT NOTE: Use caution after changing the filter; air in the hydraulic system may affect the responsiveness of the control levers. Repeat step 11 until the air is out of the system.

BATTERY MAINTENANCE

Cleaning the Battery and Cables

1. Disconnect the cables from the battery, negative cable first (B, Figure 28).
2. Clean the battery terminals and cable ends with a wire brush until shiny.
3. Reinstall the battery and reattach the battery cables, positive cable first (see A, Figure 28)
4. Coat the cable ends and battery terminals with petroleum jelly or non-conducting grease.

⚠ WARNING

Be careful when handling the battery. Avoid spilling electrolyte. Keep flames and sparks away from the battery.
When removing or installing battery cables, disconnect the negative cable FIRST and reconnect it LAST. If not done in this order, the positive terminal can be shorted to the frame by a tool.

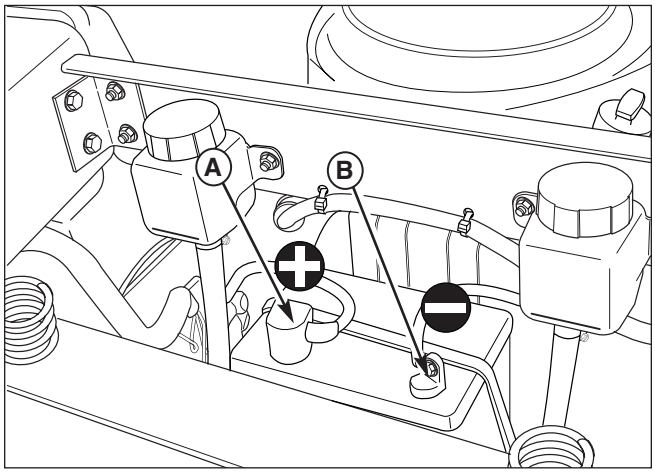


Figure 28. Battery Maintenance
A. Positive Cable
B. Negative Cable

STORAGE

Before you store your unit for the off-season, read the Maintenance and Storage instructions in the Safety Rules section, then perform the following steps:

- Disengage the PTO, set the parking brake, & remove the key.
- Perform engine maintenance and storage measures listed in the engine owner's manual. This includes draining the fuel system, or adding stabilizer to the fuel (do not store a fueled unit in an enclosed structure - see warning).
- Battery life will be increased if it is removed, put in a cool, dry place and fully charged about once a month. If the battery is left in the unit, disconnect the negative cable.

Before starting the unit after it has been stored:

- Check all fluid levels. Check all maintenance items.
- Perform all recommended checks and procedures found in the engine owner's manual.
- Allow the engine to warm up for several minutes before use.

⚠ WARNING

Never store the unit (with fuel) in an enclosed, poorly ventilated structure. Fuel vapors can travel to an ignition source (such as a furnace, water heater, etc.) and cause an explosion. Fuel vapor is also toxic to humans and animals.

TROUBLESHOOTING

While normal care and regular maintenance will extend the life of your equipment, prolonged or constant use may eventually require that service be performed to allow it to continue operating properly.

The troubleshooting guide below lists the most common problems, their causes and remedies.

See the information on the following pages for instructions on how to perform most of these minor adjustments and service repairs yourself. If you prefer, all of these procedures can be performed for you by your local authorized dealer.

⚠ WARNING

To avoid serious injury, perform maintenance on the tractor or mower only when the engine is stopped and the parking brake engaged.

Always remove the ignition key, disconnect the spark plug wire and fasten it away from the plug before beginning the maintenance, to prevent accidental starting of the engine.

TROUBLESHOOTING THE RIDER

PROBLEM	CAUSE	REMEDY
Engine will not turnover or start.	1. Parking brake not engaged.	1. Engage parking brake.
	2. PTO (electric clutch) switch in ON position.	2. Place in OFF position.
	3. Out of fuel.	3. If engine is hot, allow it to cool, then refill the fuel tank.
	4. Engine flooded.	4. Move choke control to closed position.
	5. Fuse blown.	5. Replace fuse.
	6. Battery terminals require cleaning.	6. Clean the battery terminals
	7. Battery discharged or dead.	7. Recharge or replace.
	8. Wiring loose or broken.	8. Visually check wiring & replace broken or frayed wires. Tighten loose connections.
	9. Solenoid or starter motor faulty.	9. Repair or replace. See authorized dealer
	10. Safety interlock switch faulty.	10. Replace as needed. See authorized service dealer.
	11. Spark plug(s) faulty, fouled or incorrectly gapped.	11. Clean and gap or replace. See engine manual.
	12. Water in fuel.	12. Drain fuel & replace with fresh fuel.
	13. Gas is old or stale.	13. Drain fuel & replace with fresh fuel.
Engine starts hard or runs poorly.	1. Fuel mixture too rich.	1. Clean air filter. Check choke adjustment.
	2. Spark plug faulty, fouled, or incorrectly gapped.	2. Clean and gap or replace. (See engine manual.)
Engine knocks.	1. Low oil level.	1. Check/add oil as required.
	2. Using wrong grade oil.	2. See engine manual.
Excessive oil consumption.	1. Engine running too hot.	1. Clean engine fins, blower screen and air cleaner.
	2. Using wrong weight oil.	2. See engine manual.
	3. Too much oil in crankcase.	3. Drain excess oil.
Engine exhaust is black.	1. Dirty air filter.	1. Replace air filter. See engine manual.
	2. Engine choke control is in closed position.	2. Open choke control.

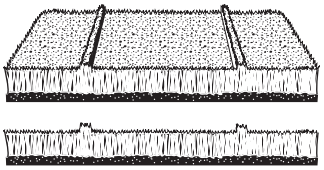
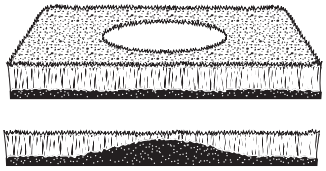
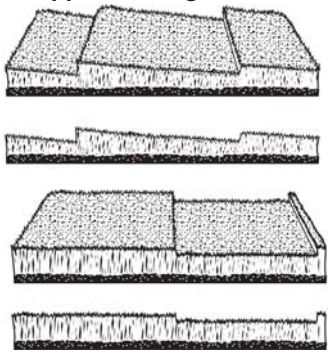
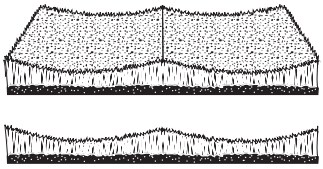
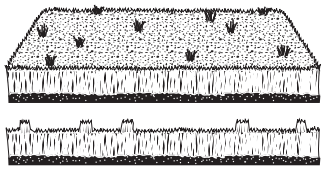
Rider Troubleshooting Continued.

PROBLEM	CAUSE	REMEDY
Engine runs, but rider will not drive.	1. Hydraulic release lever(s) in “free-wheel” position. 2. Belt is broken. 3. Drive belt slips. 4. Brake is not fully released.	1. Move lever(s) forward to “drive” position. See Pushing The Rider By Hand. 2. See Drive Belt Replacement. 3. See problem and cause below. 4. See authorized service dealer
Rider drive belt slips.	1. Pulleys or belt greasy or oily. 2. Tension too loose. 3. Belt stretched or worn.	1. Clean as required. 2. Adjust spring tension. See Drive Belt Replacement 3. Replace belt.
Brake will not hold.	1. Brake is incorrectly adjusted. 2. Brake pads worn.	1. See Brake Adjustment. 2. Replace with new brake pads.
Rider steers or handles poorly.	1. Steering linkage is loose. 2. Improper tire inflation.	1. Check and tighten any loose connections. 2. See Regular Maintenance Section.

TROUBLESHOOTING THE MOWER

PROBLEM	CAUSE	REMEDY
Mower will not raise.	1. Lift linkage not properly attached or damaged.	1. See authorized service dealer for repair.
Engine stalls easily with mower engaged.	1. Engine speed too slow. 2. Ground speed too fast. 3. Cutting height set too low. 4. Discharge chute jamming with cut grass.	1. Set to full throttle. 2. Decrease Ground Speed. 3. Cut tall grass at maximum cutting height during first pass. 4. Cut grass with discharge pointing toward previously cut area.
Excessive mower vibration.	1. Blade mounting bolts are loose. 2. Mower blades, arbors, or pulleys are bent. 3. Mower blades are out of balance. 4. Belt installed incorrectly.	1. Tighten to 70 ft.lbs. (94 Nm). 2. Check and replace as necessary. 3. Remove, sharpen, and balance blades. See Maintenance Section. 4. Reinstall Correctly.
Excessive belt wear or breakage.	1. Bent or rough pulleys. 2. Using incorrect belt.	1. Repair or replace. 2. Replace with correct belt.
Mower drive belt slips or fails to drive.	1. Idler pulley spring broken or not properly attached. 2. Mower drive belt broken.	1. Repair or replace as needed. 2. Replace drive belt.
Mower does not engage.	1. Electrical wiring damage. 2. Battery voltage too low.	1. Locate & repair damaged wire. 2. Recharge battery and check alternator. See Battery Maintenance section.

TROUBLESHOOTING COMMON CUTTING PROBLEMS

PROBLEM	CAUSE	REMEDY
Streaking. 	1. Blades are not sharp. 2. Blades are worn down to far. 3. Engine speed is too slow. 4. Ground speed is too fast. 5. Deck is plugged with grass 6. Not overlapping cutting rows enough. 7. Not overlapping enough when turning.	1. Sharpen your blades. 2. Replace your blades. 3. Always mow at full throttle. 4. Slow down. 5. Clean out the mower. 6. Overlap your cutting rows. 7. When turning your effective cutting width decreases–overlap more when turning.
Scalping. 	1. Lawn is uneven or bumpy. 2. Mower deck cutting height is set too low. 3. Ground speed is too fast. 4. Deck is not leveled correctly. 5. Tire pressure is low or uneven	1. Roll or level the lawn. 2. Raise the cutting height. 3. Slow down. 4. Correctly level the deck. 5. Check and inflate the tires.
Stepped Cutting. 	1. Deck is not leveled correctly. 2. Tires are not properly inflated. 3. Blades are damaged. 4. Deck shell is damaged. 5. Mower spindle is bent or loose. 6. Blades are installed incorrectly.	1. Level the deck correctly. 2. Check and inflate the tires. 3. Replace the blades. 4. Repair or replace the deck. 5. Repair or replace the spindle. 6. Reinstall the blades correctly.
Uneven Cutting. 	1. Deck is not leveled correctly. 2. Blades are dull or worn. 3. Blades are damaged. 4. Deck is clogged with grass clippings. 5. Deck shell is damaged. 6. Mower spindle is bent or loose. 7. Blades are installed incorrectly. 8. Tires are not properly inflated.	1. Level the deck correctly. 2. Sharpen or replace the blades. 3. Replace the blades. 4. Clean out the deck. 5. Repair or replace the deck. 6. Repair or replace the spindle. 7. Reinstall the blades correctly. 8. Check and inflate the tires.
Stingers. 	1. Blades are not sharp or nicked. 2. Blades are worn down too far. 3. Engine speed is too slow. 4. Ground speed is too fast. 5. Deck is plugged with grass.	1. Sharpen your blades. 2. Replace your blades. 3. Always mow at full throttle. 4. Slow down. 5. Clean out the mower.

SEAT ADJUSTMENT

The seat and ground speed control levers should be adjusted so that operator's elbows are supported by the arm rests when his/her hands are on the controls, and the ground speed control levers can be moved through their full range of motion without contacting the operator's legs.

Seat Position Adjustment

The seat can be adjusted forward and back. Move the adjustment lever (A, Figure 29) towards the left hand side of the machine, slide the seat to the desired position, and release the lever.

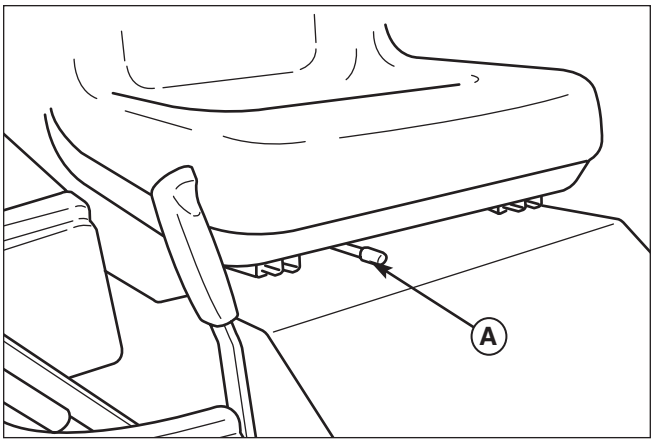


Figure 29. Seat Adjustment
A. Adjustment Lever

GROUND SPEED CONTROL LEVER ADJUSTMENT

The control levers can be adjusted in three ways. The alignment of the control levers, the placement of the levers (how close the ends are to one another) and the height of the levers can be adjusted.

To Adjust the Handle Alignment: Loosen the mount bolts (A, Figure 30) and pivot the lever(s) (C) to align with each other.

To Adjust the Handle Placement: Loosen the jam nuts and adjust the placement bolt (B, Figure 30) in or out to properly adjust the lever end spacing.

To Adjust the Handle Height: Remove the mounting hardware and reposition the handle either up or down from its original position. You will need to readjust the handle alignment as described above.

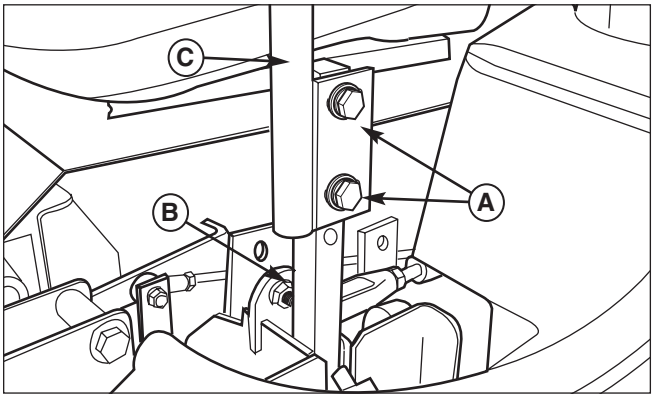


Figure 30. Control Lever Adjustment
A. Alignment Hardware
B. Placement Hardware
C. Ground Speed Control Lever

SPEED BALANCING ADJUSTMENT

⚠ WARNING

DO NOT adjust the rider for a faster overall speed forward or reverse than it was designed for.

If the rider veers to the right or left when the ground speed control levers are in the maximum forward or reverse position, the top speed of each of these levers can be balanced by turning the adjustment bolt(s) (A & C Figure 31). Only adjust the speed of the wheel that is traveling faster.

TO REDUCE THE SPEED OF THE FASTER WHEEL

1. Loosen the jam nut securing the top speed adjustment bolt (A, C).
2. Turn the top speed adjustment bolt COUNTER-CLOCKWISE to reduce the speed.
3. Retighten the securing nut when adjustment is complete.

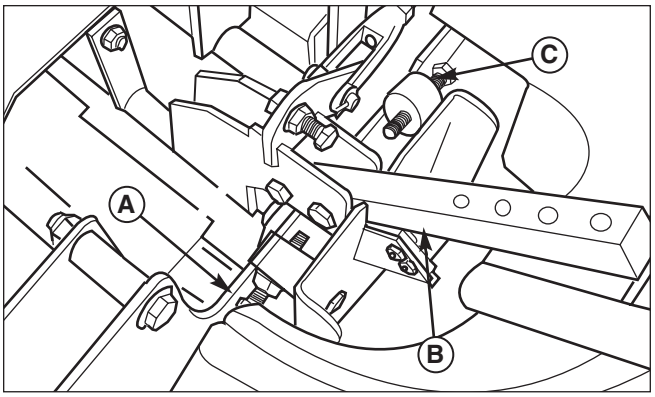


Figure 31. Top Speed Adjustment
A. Forward Top Speed Adjustment Bolt
B. Control Lever Base
C. Reverse Top Speed Adjustment Bolt

CUTTING HEIGHT ADJUSTMENT

The cutting height adjustment pin (A, Figure 32) controls the mower cutting height. The cutting height is adjustable between 1-1/2" (3,8 cm) and 4-1/2" (11,4cm). Pulling the lever back fully locks the control in transport position.

To adjust cutting height:

1. Pull the adjustment lever (B) back fully until it locks in transport position.
2. Remove the cutting height adjustment pin (A) and insert it into the desired hole.
3. Pull back on the adjustment lever (B), squeeze the smaller transport release lever (C), and allow the lever to move forward until it is supported by the cutting height adjustment pin (A).

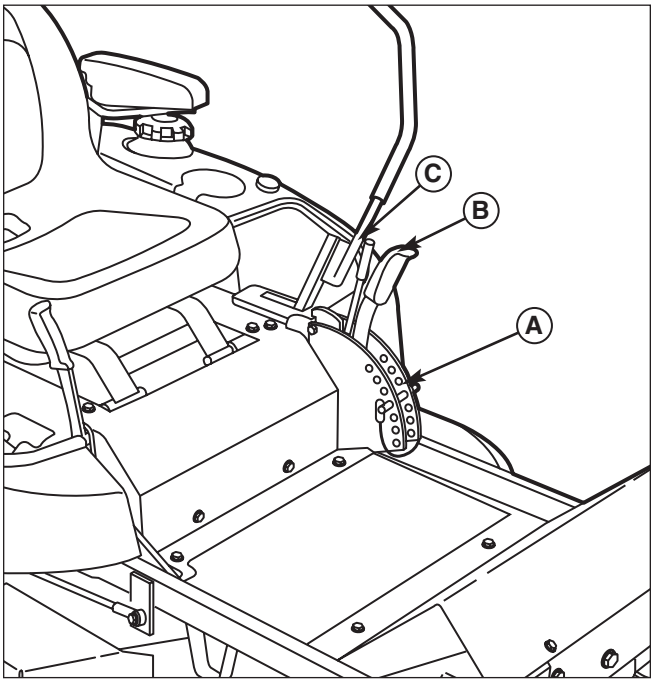


Figure 32. Cutting Height Adjustment
A. Cutting Height Adjustment Pin
B. Deck Lift / Cutting Height Lever
C. Transport Release Lever

NEUTRAL ADJUSTMENT

If the unit creeps forward or backward with the control levers in their neutral positions, see your dealer.

PARKING BRAKE ADJUSTMENT

1. Disengage the PTO, stop the engine, engage the parking brake, and remove the key from the ignition.
2. Raise the seat plate to gain access to the parking brake components.
3. Measure the distance from the top of the brake spring rod (C, Figure 33) to the top of the lock nut (D) on both sides of the unit. The measurement should be .50" (1,27 cm). If not, adjust the locknut to achieve the measurement of .50" (1,27 cm).
4. Measure the distance between the bottom of the brake shaft weldment (G) and the top of the set collar (F). The measurement should be .125" (0,32 cm). If not, position the set collar until the measurement equals .125" (0,32 cm).

NOTE: If this procedure does not correct the problem see your dealer.

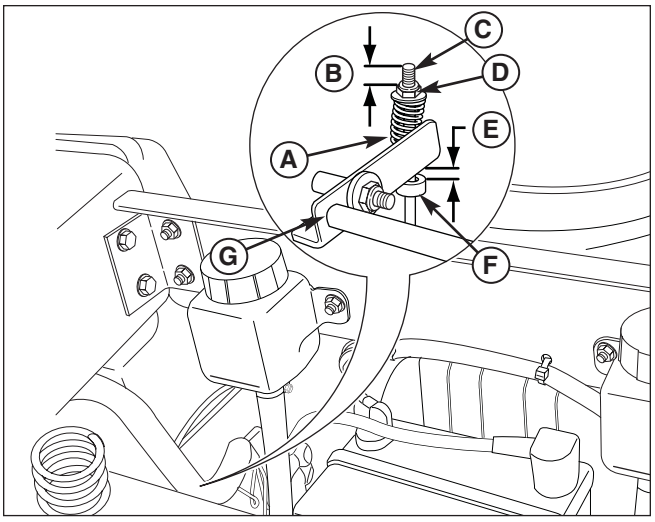


Figure 33. Parking Brake Adjustment
A. Brake Spring
B. First Measurement - .50" (1,27 cm)
C. Brake Spring Rod
D. Lock Nut
E. Second Measurement - .125" (0.32 cm)
F. Set Collar
G. Brake Shaft Weldment

SUSPENSION ADJUSTMENT (SELECT MODELS)

The shock assembly can be adjusted to vary the amount of pre-load applied to the springs. This allows the operator to customize the ride according to operator's weight and operating conditions.

LESS PRE-LOAD:

- Light operator weight
- Softer, more cushioned ride
- Best for relatively flat terrain

MORE PRE-LOAD:

- Heavy operator weight
- Stiffer, more rigid ride
- Better handling and greater stability on hilly terrain

TO ADJUST THE SPRING PRE-LOAD:

1. Park machine on a flat, level surface. Disengage the PTO, stop the engine and engage the parking brake.
2. See Figure 34. Turn the pre-load adjustment collar (A) CLOCKWISE to increase the pre-load, turn COUNTER-CLOCKWISE to decrease the pre-load. Make sure both front shocks are set to the same amount of pre-load. Make sure both rear shocks are set to the same amount of pre-load.

NOTE: After adjusting the front shock assembly, move the o-ring against the adjustment collar to prevent the collar from loosening during operation.

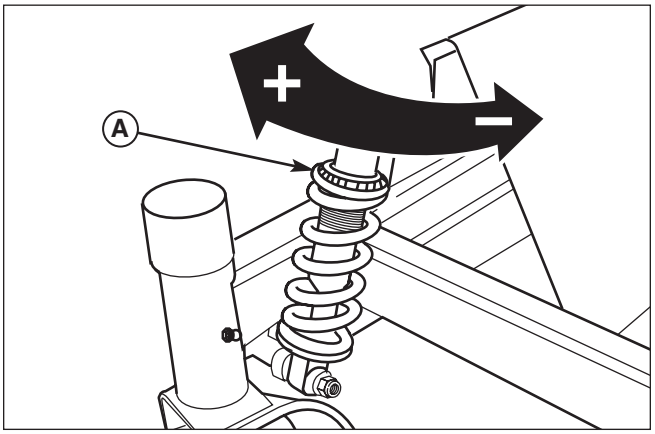


Figure 34. Suspension Adjustment
A. Front Shock Adjustment Collar

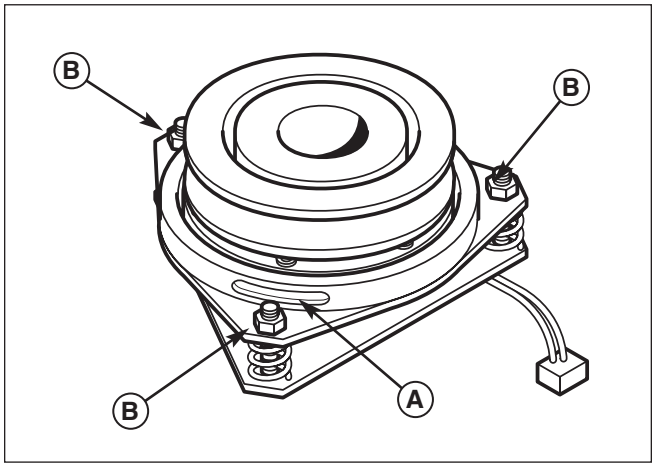


Figure 35. PTO Clutch Adjustment
A. Adjustment Window (Qty. 3, one shown)
B. Adjustment Nut

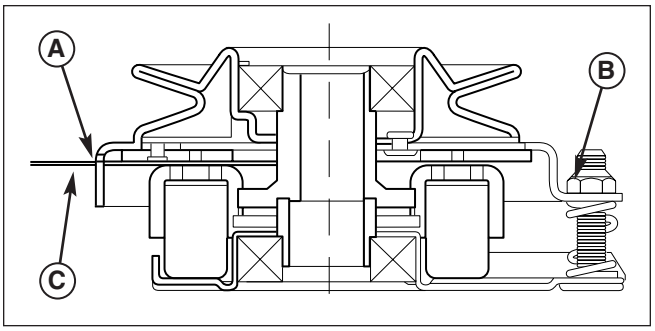


Figure 36. Adjust PTO Clutch
A. Window
B. Adjustment Nut
C. .016”-.018” (0,40-0,45mm) Feeler Gauge

PTO CLUTCH ADJUSTMENT

Check the PTO clutch adjustment after every 100 hours of operation. Also perform the following procedure if the clutch is slipping or will not engage, or if a new clutch has been installed.

1. Remove key from ignition switch and disconnect spark plug wires to prevent the possibility of accidental starting while the PTO is being adjusted.
2. See Figure 35. Note the position of the 3 adjustment windows (A) in the side of the brake plate and the nylock adjustment nuts (B).
3. Insert a .016”-.018” (0,40-0,45mm) feeler gauge (C) through each window, positioning the gauge between the rotor face and the armature face as shown in Figure 36.
4. Alternately tighten the adjustment nuts (B, Figure 35) until the rotor face and armature face just contacts the gauge.
5. Check the windows for an equal amount of tension when the gauge is inserted and removed, and make any necessary adjustments by tightening or loosening the adjustment nuts.

NOTE: The actual air gap between the rotor and armature may vary even after performing the adjustment procedure. This is due to dimensional variations on component parts, and is an acceptable condition.

6. Check the mower blade stopping time. The mower blades and mower drive belt should come to a complete stop within five (5) seconds after the electric PTO switch is turned off.

⚠ WARNING

To avoid serious injury, perform adjustments only with engine stopped, key removed and rider on level ground.

BLADE BRAKE CHECK

Mower blades and mower drive belt should come to a complete stop within five (5) seconds after electric PTO switch is turned off.

1. With parking brake engaged, PTO disengaged and an operator in the seat, start the engine engine.
2. Have an assistant observe the mower drive belt through the opening between the frame and top of mower deck. Engage the PTO and wait several seconds. Disengage the PTO and check the amount of time it takes for the mower drive belt to stop.
3. If the mower drive belt does not stop within five (5) seconds, perform the PTO Clutch Adjustment. If the belt still does not stop within five (5) seconds, see your dealer.

MOWER DECK LEVELING

Perform these adjustments on a flat level surface.

SIDE-TO-SIDE LEVELING

1. With the mower installed, place the rider on a smooth, level surface such as a concrete floor. Turn the front wheels so they are straight.
2. Check for bent blades and replace if necessary.
3. Place the mower cutting height pin in the 4th hole from the bottom (see insert, Figure 39). Arrange the outside mower blades so that they are pointing from side-to-side (Figure 37).
4. Measure the distance between the outside tips of each blade and the ground (Figures 37 & 38). If there is more than 1/8" (3mm) difference between the measurements on each side, proceed to step 5. If the difference is 1/8" (3mm) or less, proceed to step 6.
5. Use the rear leveling links (B, Figure 39) to adjust the side-to-side leveling of the deck. Repeat step 4 if necessary.

FRONT-TO-BACK LEVELING

6. Arrange the blades so they face front-to-back (Figure 40).
7. Measure the distance from the ground to the front tip of the center blade, and from the ground to rear tips of left-hand and right-hand blades (Figures 38 & 40). The front tip of the center blade should be 1/4" (6mm) higher than rear tips of left-hand and right-hand blades. If not, proceed with steps 8 - 11.
8. Check the length of the hanging rods. The rear (D, Figure 39) should be 15" (38,1cm) and is not adjusted. To adjust the pitch of the mower deck, adjust the front leveling nuts only.
9. Loosen the front lock nuts (E, Figure 39).
10. Turn the leveling nuts (A, Figure 39) counter-clockwise to lower the front of mower deck. Turn the nuts clockwise to raise the front of the mower. Make adjustments in small increments, trying to keep tension on both leveling nuts.
11. Tighten the front lock nuts (E).
12. Re-check the blade measurement then repeat steps 7-11 as necessary.

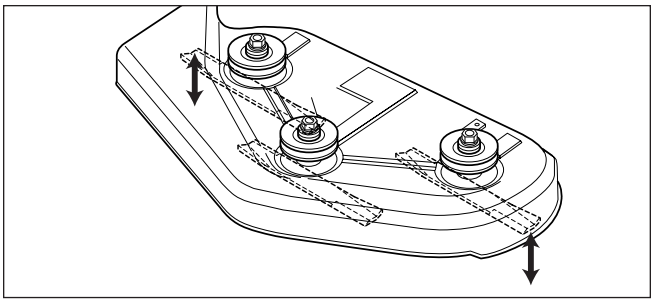


Figure 37. Orient Blades Side-to-Side

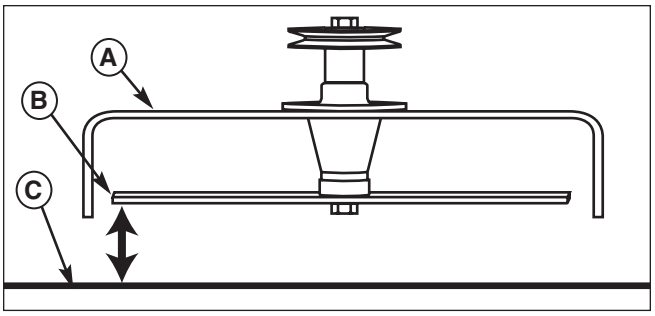


Figure 38. Measure Blade Tips to Ground
A. Mower Deck
B. Blade Tip
C. Level Ground

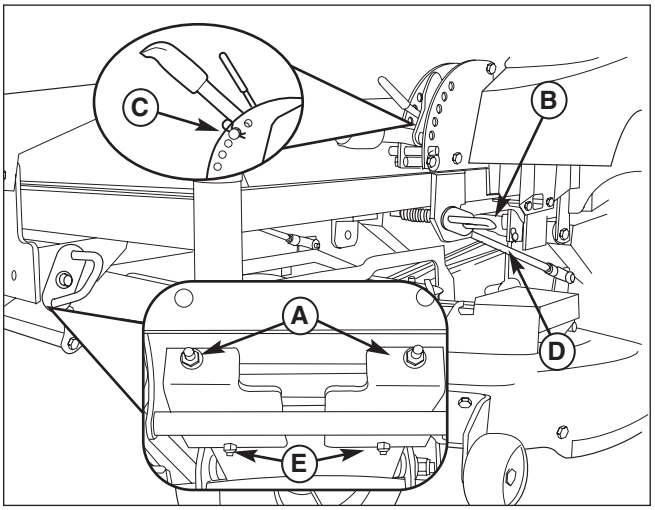


Figure 39. Mower Leveling
A. Front Leveling Nuts
B. Rear Leveling Rods
C. 4th Cutting Height Hole
D. Rear Hanger Rods
E. Front Lock Nuts

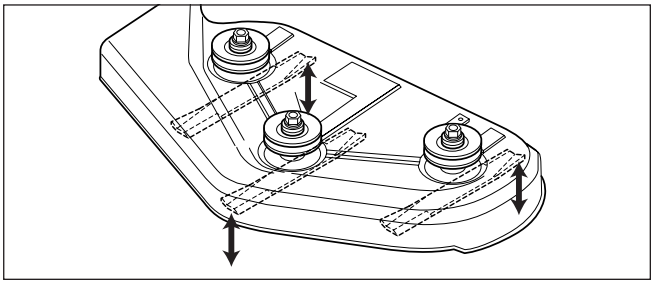


Figure 40. Orient Blades Front-to-Back

ROLLER BAR LEVELING (SELECT MODELS)

The rollers on this Zero Turn unit are not intended to ride on the ground. DO NOT adjust rollers to ride on the ground. Rollers riding on the ground will damage turf and/or unit.

1. First level the mower deck using the procedure found in MOWER DECK LEVELING.
2. With the mower installed, place the rider on a smooth, level surface such as a concrete floor. Turn the front wheels so they are straight.
3. Place the mower cutting height pin in the 4th hole from the bottom (C, Figure 39).
4. Measure the distance between the outside ends of the roller bar and the ground. If there is more than 1/8" (3mm) difference between the measurements on each side, proceed to step 5.
5. Locate the roller bar leveling eccentric and locknuts (A, Figure 42). Loosen the locknut and turn the eccentric to raise or lower a side. When the correct level is achieved, hold the eccentric with a wrench and tighten the locknut. Repeat step 4 if necessary.

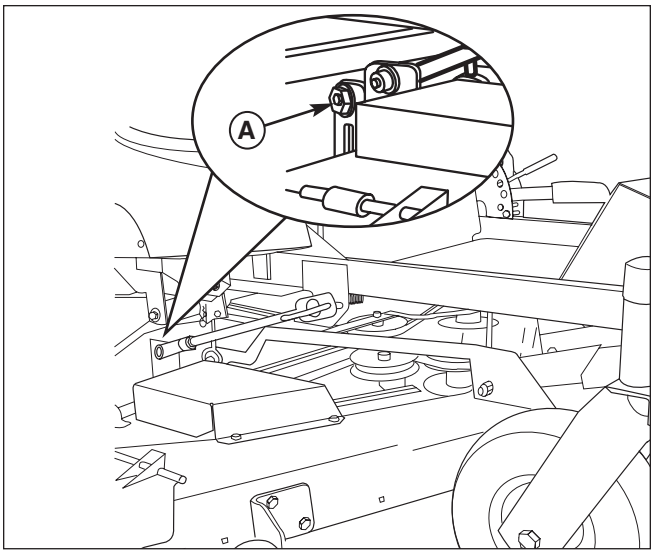


Figure 41. Roller Bar Leveling
A. Eccentric and Locknut

MOWER BELT REPLACEMENT

To avoid damaging belts, DO NOT PRY BELTS OVER PULLEYS.

1. Park the rider on a smooth, level surface such as a concrete floor. Disengage the PTO, engage the parking brake, turn off the engine, and remove the ignition key.
2. Raise the mower deck to transport position. Pull the lever (A, Figure 42) towards the rear of the machine to release tension on the mower belt. Secure the lever in the guard notch (B).
3. Remove the old drive belt and install the new one as shown in Figure 43. Note that the back of the drive belt must ride against the back-side idler pulleys (B). Use the belt tension lever (A, Figure 42) to release tension on the idler pulley for installation.

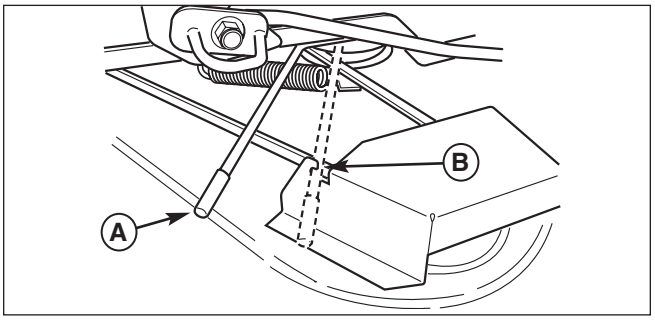


Figure 42. Release Belt Tension
A. Belt Tension Release Lever
B. Guard Notch

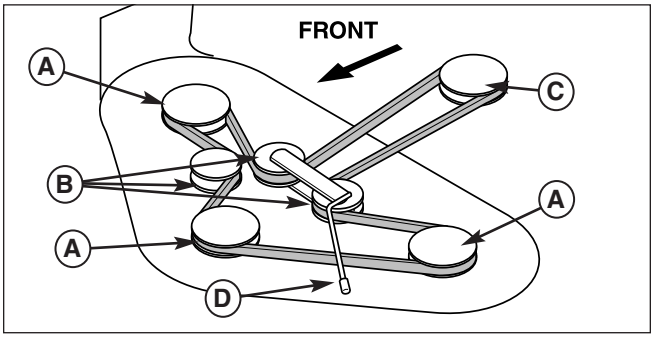


Figure 43. Mower Belt Routing
A. Arbor Pulleys
B. Back-Side Idler Pulleys
C. PTO Pulley
D. Belt Tension Release Lever

HYDRAULIC PUMP DRIVE BELT REPLACEMENT

1. Park the rider on a smooth, level surface such as a concrete floor. Disengage the PTO, engage the parking brake, turn off the engine, and remove the ignition key.
2. Remove the PTO drive belt (see MOWER BELT REPLACEMENT for removal instructions).
3. Loosen the nut towards the front of the machine on the spring anchor hook (H, Figure 44) to release the majority of the belt tension. Use caution and remove the nut to completely release the tension.
4. Remove the old belt and replace it with the new one. Make sure the V-side of the belt runs in the grooves of the crankshaft pulley and transmission pulleys (B & C).
5. Reinstall the anchor hook (H) into the anchor tab and loosely fasten the nut. Adjust the spring until a measurement of 9" (22,86cm) is achieved from the outside of the spring hooks. Tighten nut.
6. Reinstall the PTO drive belt.

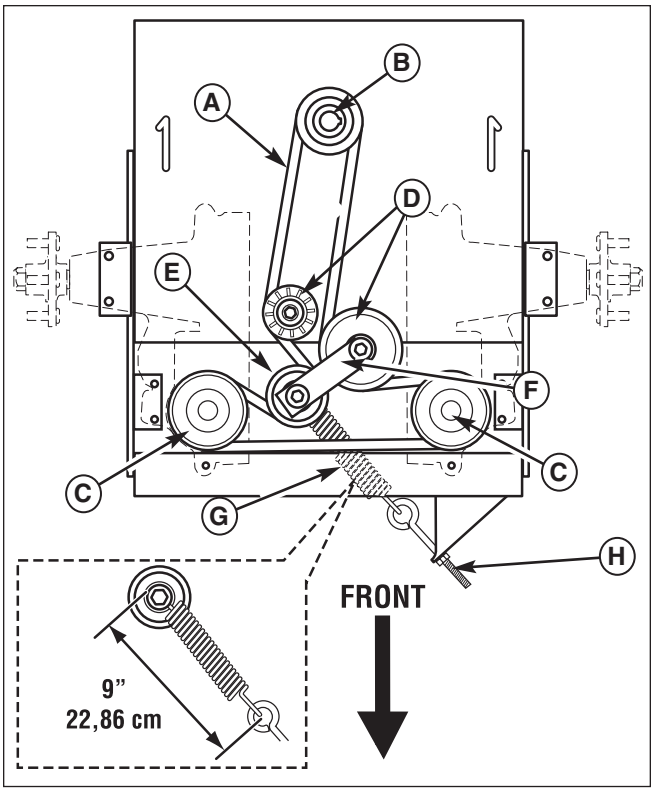


Figure 44. Hydraulic Pump Drive Belt Replacement
(Shown from Below)
A. Pump Drive Belt
B. Crankshaft Pulley
C. Transmission Pulley
D. Idler Pulleys (stationary)
E. Idler Pulley
F. Idler Arm
G. Spring
H. Spring Anchor Hook

BATTERY CHARGING

A dead battery or one too weak to start the engine may be the result of a defect in the charging system or other electrical component. If there is any doubt about the cause of the problem, see your dealer. If you need to replace the battery, follow the steps under Cleaning the Battery & Cables in the Regular Maintenance Section.

To charge the battery, follow the instructions provided by the battery charger manufacturer as well as all warnings included in the safety rules sections of this book. Charge the battery until fully charged. Do not charge at a rate higher than 10 amps.

⚠ WARNING

Keep open flames and sparks away from the battery; the gasses coming from it are highly explosive. Ventilate the battery well during charging.

Specifications

NOTE: Specifications are correct at time of printing and are subject to change without notice.

ENGINE:

24 HP* Briggs & Stratton

Make	Briggs & Stratton
Model	44M7770113E1
Horsepower	24 @ 3500 rpm
Displacement	34.75 Cu. in (570 cc)
Electrical System	12 Volt, 16 amp. Alternator, Battery: 340 CCA
Oil Capacity	4 US pt. (1.9 L) w/ Filter

CHASSIS:

Fuel Tank	Capacity: 6.5 Gallons (24.6 L)
Rear Wheels	Tire Size: 20 x 8.00 -10 Inflation Pressure: 15 psi (1,03 bar)
Front Wheels	Tire Size: 11 x 4.00-5 Inflation Pressure: 40 psi (2,76 bar)

TRANSMISSIONS:

HydroGear ZK-GMEE-3L7B-1YLX (RH)
HydroGear ZK-KMEE-3L7C-1YLX (LH)

Type	ZT2800
Hydraulic Fluid	20W-50 conventional detergent motor oil
Speeds	Forward: 0-7 MPH (0-11.27 km/h)
@ 3400 rpm	Reverse: 0-5 MPH (0-8.05 km/h)
Continuous Torque Output	180 ft. lbs. (244 N.m.)
Maximum Weight on Axle	440 lbs. (200 Kg) per Axle

DIMENSIONS:

Overall Length	78” (190,5 cm)
Overall Width	41.5” (105 cm)
Height	42” (107 cm)
Weight (apx.)	
With 50” Mower Deck	723 lbs. (328 kg)
With 44” Mower Deck	712 lbs. (322 kg)

Engine Power Rating Information

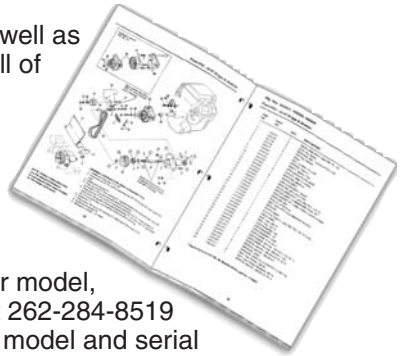
The gross power rating for individual gas engine models is labeled in accordance with SAE (Society of Automotive Engineers) code J1940 (Small Engine Power & Torque Rating Procedure), and rating performance has been obtained and corrected in accordance with SAE J1995 (Revision 2002-05). Torque values are derived at 3060 RPM; horsepower values are derived at 3600 RPM. Actual gross engine power will be lower and is affected by, among other things, ambient operating conditions and engine-to-engine variability. Given both the wide array of products on which engines are placed and the variety of environmental issues applicable to operating the equipment, the gas engine will not develop the rated gross power when used in a given piece of power equipment (actual "on-site" or net power). This difference is due to a variety of factors including, but not limited to, accessories (air cleaner, exhaust, charging, cooling, carburetor, fuel pump, etc.), application limitations, ambient operating conditions (temperature, humidity, altitude), and engine-to-engine variability. Due to manufacturing and capacity limitations, Briggs & Stratton may substitute an engine of higher rated power for this Series engine.

Technical Manuals

Technical Manuals



Additional copies of this manual are available, as well as fully illustrated parts lists. These manuals show all of the product’s components in exploded views (3D illustrations which show the relationship of parts and how they go together) as well as part numbers and quantities used. Important assembly notes and and torque values are also included.



For applicable manuals currently available for your model, contact our Customer Publications Department at 262-284-8519 (Simplicity) / 866-313-6682 (Snapper). Have the model and serial information for your machines available when phoning in your request.

Technical manuals can be downloaded from

www.simplicitymfg.com | www.snapper.com

Notes

Product Quick Specs:

ENGINE:

24 HP* Briggs & Stratton

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Model	44M7770113E1
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BELTS AND BLADES:

TRACTOR

Pump Drive Belt	5101033

44” MOWER

Deck Drive Belt	5023256
Mower Blade	1704100

50” MOWER

Deck Drive Belt	5023255
Mower Blade	1708229

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